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VOL. XII.

MOZAMBIQUE–PARR.

THE NEW

AMERICAN CYCLOPÆDIA:

A

Popular Dictionary

OF

GENERAL KNOWLEDGE.

EDITED BY

GEORGE RIPLEY AND CHARLES A. DANA.

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THE

NEW AMERICAN CYCLOPÆDIA.

MOZAMBIQUE, or **Mosambique**, a name applied to a large extent of the seaboard of E. Africa, belonging to Portugal; pop. estimated at 300,000, including about 22,000 slaves. It is bounded E. by the Mozambique channel, N. by Cape Delgado, lat. 10° 38′ S., and S. by Delagoa bay, lat. 26° S.; on the W. it cannot be said to have any definite interior boundary. The coast is characterized by the two prominent headlands of Cape Corrientes in the S. and Cape Delgado in the N.; and also by several large bays, the chief of which are Delagoa, Mocambo, and Pamba. Between Delagoa bay and Cape Corrientes, and from Mozambique city to Cape Delgado, the shores are high and precipitous; while reefs and numerous islands lie off the land nearly throughout its entire length. Many large streams discharge themselves here; the principal is the Zambesi, the largest river of E. Africa, which debouches by several mouths at the middle point of the Mozambique coast. Dr. Livingstone is now (1860) engaged in exploring the Zambesi. Considerable tracts of the country are cultivated and yield abundant crops of rice. The forests supply wood of great beauty and value. The rivers abound with hippopotami, which yield fine ivory. Gold is obtained in considerable quantities by washing the sands, and copper ore is said to be found in several places. The vast plains of the interior abound in elephants, lions, and other wild animals, from which ivory and valuable skins are obtained. The Portuguese, however, have so neglected their possessions that the trade and government are now in a very feeble condition; and at some stations the latter is said to be more in the hands of influential native chiefs than in those of the Portuguese governor. The military force, 1,096 men, consists of a very inferior class of soldiers. The coast for administrative purposes is divided into 6 sub-districts, of which Mozambique is the head. A governor-general and secretary, appointed by the crown, administer the government, assisted by a *junta*, which is composed of a president, treasurer, and 12 members. The established religion is Roman Catholic, and is superintended by a prelate, a prior, and 12 parochial priests. Education, which, like religion, is here at a very low ebb, is dispensed by 16 teachers in all, 4 of whom are females, and most of them reside in the capital. The Portuguese settlements, beginning from the N., are San João, Mozambique, Quilimane, Sena, Tete, Sofala, Inhamban, and Lorenzo Marques; all of which are more or less decayed.—This coast was known to the Arabs centuries before its discovery by Europeans. When first visited by the Portuguese in 1497, the whole coast was in possession of the Arabs; but the fame of its gold mines and the convenience of its ports as resting places for the Indian trade, led them to attempt the expulsion of the original settlers. This was not difficult, and in 1508 they had obtained a footing in two places, and built a fort upon the island of Mozambique. The Portuguese made some attempts to penetrate the interior, but were not very successful; and latterly they have contented themselves with acting on the defensive, occupying the spots already mentioned on the coast and along the banks of the river Zambesi. In some places the natives are decidedly inimical to the Portuguese authority, which does not extend 10 consecutive miles in any direction. The slave trade is still actively carried on. In 1846 Governor Abreu de Madeira was removed from Quilimane for being concerned in it; his successor deserted his post, and escaped in a ship with a large cargo of slaves. In 1847 the governor-general, a distinguished officer, was suspended for malpractices; and the governor-general in 1857 was removed for carrying on the slave trade, decisive measures for the suppression of which were adopted by his successor, Col. d'Almeida. —**Mozambique**, the capital of the above territory, is on a coral island near the mainland; pop. 8,522, including 7,000 slaves. The centre of the island is in lat. 15° 8′ S., long. 40° 48′ E. It is about 1¼ m. long, and ¼ m. broad, in the form of a crescent, with the hollow side toward the sea; and, with two other islets, it is situated near the mouth of a bay some 6 m. long and 5 broad, which furnishes a safe and excellent harbor. The ground on which the town stands is from 20 to 50 feet above the level of the water, and the position is strongly fortified. The governor's palace is an extensive stone building.

There are 2 churches and 3 small chapels, a hospital, prisons, tanks, and storehouses. The streets are very narrow, and the houses being all whitewashed, the glare and heat are very great, the mercury rising from 6° to 10° higher in the town than on the mainland. The inhabitants are a strange mixture of Indian, Arabian, and European, and their costumes are as various as their races. With the exception of the governor and his staff, the greater part of the European settlers are culprits who have been sentenced to banishment. A few years ago there were only 7 white women in the colony. Other classes are the descendants of the old Arab settlers, most of whom are sailors, the Banian traders from Hindostan, and negroes. The merchants of Mozambique in former days supplied nearly all the markets in that part of the world with slaves, beside sending some to the West India islands. The legitimate traffic of the place is principally carried on by Arab ships, which bring piece goods and eastern produce from India, and take back ivory, gold dust, and dollars. The climate is hot and unhealthy, especially in the months of September, October, and November. The natives on the mainland in the neighborhood are athletic and savage.

MOZAMBIQUE CHANNEL, the passage between the E. coast of Africa and the island of Madagascar, lat. 12° to 25° S. At its S. entrance it is 550 m. wide, at its N. nearly 600, and in the centre about 250. Its length from N. E. to S. W. is about 1,050 m. The Comoro islands lie at its N. entrance.

MOZART, Johann Georg Leopold, a German musician, born in Augsburg, Nov. 14, 1719, died May 28, 1787. He was gifted with good musical talents, became early a singing boy in the church of the Holy Cross, and without neglecting other studies made himself thoroughly acquainted with music, theoretical and practical, astonishing his hearers while still a youth by his performance upon the organ at Munich, and at a later period laying the foundation for modern German violin playing. By teaching music he paid his way while studying law, which he had chosen for a profession, and which brought him early to Saltzburg, partly to perfect his studies, partly in the hope of obtaining a place under the provincial government. In this he was disappointed, and was forced by poverty to accept a position as chamberlain in the service of Count Thurn, a prebendary of the cathedral. At the age of 24 Archbishop Sigismund appointed him chamber musician. A few years later he was advanced to the position of court composer and leader of the orchestra, and reached the dignity of vice-chapelmaster in 1762. In 1757 his works were already very numerous—for the church, the orchestra, solo instruments, and indeed in all departments. "His style," says a contemporary, "is somewhat old-fashioned, but solid and full of contrapuntal insight. His church music is of more value than that for the chamber." A work which at once gave him a name throughout Germany was his "Violin School," which appeared in 1756. It is remarkable not only as the first of its kind, but for the earnestness with which it inculcates the idea that mere execution is not at all that which is demanded of a pupil—that this is but a means to the true artistic end. In 1747 Leopold Mozart married Anna Maria Pertlin, and had by her 7 children, of whom but two survived, a daughter and a son. The son was the great Mozart, and from the time that his extraordinary genius was discovered, the father made its culture and development the business of his life, and almost disappears from musical history except in connection with his son. The daughter, Maria Anna Walburga Ignatia (born 1751, died 1829), appeared as pianist in the musical tours made by her family from 1762 to 1767, and afterward devoted herself to teaching. In 1784 she married Johann Baptist, baron von Berchthold.

MOZART, Johannes Chrysostomus Wolfgang Amadeus, a German composer, son of the preceding, born in Saltzburg, Jan. 27, 1756, died Dec. 5, 1791. In his 3d year he attracted the notice of his father by the delight he found in striking chords upon the harpsichord, and by the ease with which he learned pleasing passages in the music lessons of his sister. In his 4th year his father began to teach him short pieces for the harpsichord. In his 5th year he composed little melodies with simple but perfectly correct harmonies, which his father wrote out, and specimens of which may be seen in the biographies by Holmes and Nissen. He was in an eminent degree a serious, tender, affectionate child, so obedient as never to have received the slightest corporal punishment from father or mother. His intellect was exceedingly quick, and, though music was all in all to him, he became at once interested in whatever studies were given to him, showing great talents for the study of languages and mathematics. During the journeys which Leopold Mozart made for the purpose of producing his children at the principal courts of Europe, the child had enlarged opportunities of hearing the best music in all styles and departments, and of making the acquaintance of the greatest performers of that age. The first of these artistic tours was to Munich, in Jan. 1762, when Wolfgang was just 6 years old. The two children played before the elector, and excited the deepest astonishment and wonder. In the autumn of the same year they visited Vienna, stopping on the way in Passau to play before the bishop, who rewarded them with one ducat; in Lintz to give a concert; and a few hours at the Franciscan convent of Ips, where Wolfgang, getting access to the organ, played so finely that the monks and several guests left their dining table to listen. The fame of the little musicians had preceded them to Vienna, and they found immediate access to the highest circles, the only circles in fact which then cultivated music, that art being the luxury of the nobles and the rich. Before the father was able to apply for an audience at court, he was ordered to appear with his children at Schönbrunn. The emperor Francis took great delight in the "little magician," as he called Wolfgang, causing him to play with one finger, with a cloth over the keys, and the like. The favor of the court made them the fashion, and the father was as much gratified by pecuniary success as by the unbounded applause which his children gained. In October the boy was seized with scarlet fever, which interrupted their good fortune. They paid a visit to Presburg, and reached home in Jan. 1763. Wolfgang had acquired no small skill also upon the violin, and on his return played at sight the 2d violin part in 6 trios, which a pupil of his father had written during his master's absence. Schachtner relates that calling at the house one day, he found Wolfgang playing his little instrument. Suddenly, after thinking a moment, he *exclaimed*: "Herr Schachtner, your violin is *tuned half* a quarter of a note lower than mine *here*, if you have left it as it was when I last played it." At the request of the father Schachtner's violin was brought and found to be as Wolfgang had said. This extraordinary memory for pitch was afterward one of the child's powers publicly exhibited. In the summer of 1763 another tour was undertaken, extending to Paris and London. The boy, now 7 years of age, excited more wonder with old musicians by his organ playing than by his performances upon the harpsichord and violin. In Heidelberg this was commemorated by an inscription placed upon the organ. At this season most of the princes before whom the children played were in their summer residences, and the correspondence of the father gives details of visits to several. In Nymphenburg Wolfgang played a violin concerto before the elector of Bavaria. Thus playing in private before princes, and giving concerts in the cities, they at length came to Frankfort-on-the-Main. An extract from the advertisement of a concert in this city, Aug. 30, will give an idea of the programmes usually performed by the children: "*The girl*, now in her 12th, and the boy, in his 8th year, will not only play concertos upon the harpsichord—the girl indeed the most difficult pieces of the greatest masters—but the boy will also perform a concerto upon a violin, accompany in symphonies upon the harpsichord, will cover the keys with a cloth and play as well as if they were in sight, and will also designate any note or chord struck at a distance, whether upon a harpsichord or any other musical instrument, or upon bells, glasses, musical clocks, &c. Finally, he will extemporize, not only upon the harpsichord, but also upon the organ, so long as any one desires, in all, even the most difficult keys that can be proposed, and thus prove that he understands the organ, which is totally different from the harpsichord in its treatment." By way of Coblentz, Aix la Chapelle, and Brussels, in all which places they played with the usual applause, they came to Paris in November. Their reception at the French court was all that the father could wish. The daughter astonished by the precision and elegance with which she performed the music of Schobert and Eckart, then the most difficult writers for keyed instruments, as well as most in vogue; the son, not more by his performances upon harpsichord, organ, and violin, than by his musical knowledge. He accompanied Italian and French airs at sight, transposing them instantly when required to do so—a task doubly difficult in those days, when the accompanist had to read the full score or depend upon a figured bass. Grimm records that upon one occasion Wolfgang was put to the test by being called upon to accompany a lady in an aria which he had never heard, and of which the music was not given him. He was thus forced to guess at the proper harmonies from the current of the melody. The first time there were occasionally false accords; the second time he played the melody with a correct accompaniment. The air was then repeated 10 times, and on each repetition the child changed the form and character of the harpsichord part. At this time Wolfgang's first work was published, consisting of 4 sonatas for harpsichord and violin. In April, 1764, the family went to London, where they remained until July, 1765. Their reception here, by king, court, and nobility, if possible surpassed in enthusiasm what they had experienced in Paris. The Hon. Daines Barrington made Wolfgang the subject of a communication published in the philosophical society's "Transactions;" the queen accepted the dedication of 6 sonatas for pianoforte and violin from his pen; the public crowded the concerts which they gave, and in which the boy appeared in a new character, that of composer of symphonies for the orchestra. They returned through Holland up the Rhine, and through Switzerland, to Saltzburg, where they arrived in Nov. 1766. Leopold now settled again quietly in Saltzburg, and put both children to a systematic and thorough study both of instrumental execution and the theory of music. Wolfgang in particular was set to work upon Emanuel Bach, Hasse, Handel, and the old Italian masters, whom he studied with unflagging zeal. A German passion cantata and a Latin *comœdia*, "Apollo and Hyacinth," the latter performed by the students in the Saltzburg university, attest his progress in contrapuntal study and composition in 1767. The approaching nuptials of one of Maria Theresa's daughters with Ferdinand, king of Naples, induced Leopold Mozart to visit Vienna again at the close of this year. It occurred to Joseph II. that an opera of the boy's composition would be interesting, and he expressed a wish for one to the manager of the court stage. An Italian opera buffa, *La finta semplice*, was selected, and Wolfgang was engaged to compose it on the usual terms, 100 ducats. The score was finished soon after Easter. It is still preserved, and is fully up to the standard of similar works of that period, even those from composers of established reputation. It never reached a performance, in consequence of cabals and intrigues; nor could Joseph command it, since the theatres at that time were leased. Leopold Mozart struggled heroically for his own and his son's honor for some 6 months, but was forced finally to give way. Since the death of her husband, Maria Theresa had given up the opera and concerts, and could not aid the Mozarts in this matter; but she gave Wolfgang an opportunity to show himself as composer and music director, by ordering of him a mass for the dedication of the orphan house church, which he composed in the autumn, and conducted in presence of the empress and court, Dec. 7, 1768. In a private circle, too, Wolfgang proved his dramatic talent by the composition of an operetta, "Bastien and Bastienne." The result of the journey was little money and much credit; so much of the latter, that upon returning to Saltzburg Archbishop Sigismund appointed the boy concert master. The year 1769 was again devoted to severe and solid study. Two masses bearing this date prove the pains taken by the father that his son should become a contrapuntist of the severest school, as the foundation for the future practice of free composition. In December of this year Wolfgang accompanied by his father set out for Italy, both for his improvement and for the recognition of his talents by the great Italian masters. Concerts were given in Innspruck, Roveredo, Verona, and Mantua, Wolfgang appearing as singer, composer, and performer upon the harpsicord, organ, and violin. His extemporaneous compositions had with musicians the greatest weight, as in them nothing but originality of ideas and a thorough mastery of musical grammar, rhetoric, and logic (if we may so speak), could carry him through with success. The composition of several arias to words from Metastasio gave such proofs of his talent for vocal composition, as his symphonies and concertos for orchestral writing, that the composition of an opera for the next winter was offered him under very flattering auspices, and upon fair if not generous terms. In Lodi Wolfgang composed his first string quartet; and in Rome he took down Allegri's *Miserere* from hearing it in the Sistine chapel—a feat, however, by no means so great as has been represented. The pope gave the Mozarts an audience (July 8), and conferred upon the son the order of the golden spur—the same which gave Gluck and other composers the title of Ritter or chevalier. On their way again to Milan they spent several weeks in Bologna, where Wolfgang had the advantage of much intercourse with Padre Martini, and where he was made member of the philharmonic society (Oct. 9). Ten days later he was again in Milan, and busy upon his opera *Mitridate, re di Ponto*. In less than two months it was finished and rehearsed, and on Dec. 26 successfully given, the little composer presiding during the performance at the harpsichord. It ran 20 nights, and when he left Milan the score remained behind, that the copyist might fill orders for 5 copies, one of which was for Lisbon. They visited Turin, Padua (where an oratorio was ordered from Wolfgang, probably the *Betulia liberata*), Vicenza, and Verona, with no abatement of their success, and reached home in March, 1771. The marriage of the archduke Ferdinand with a daughter of the prince of Modena was to be celebrated in the autumn at Milan with great splendor, and Maria Theresa had ordered for the occasion an opera by Hasse and a serenata by Mozart. In August, therefore, they again reached Milan, but it was already September before the text to the serenata—*Ascanio in Alba*, in two acts with ballet—was delivered. There were now hardly 6 weeks for the composition and rehearsal of the work. It was, however, ready at the time, and killed Hasse's opera completely. Just as they reached Saltzburg again Archbishop Sigismund died. His successor, Hieronymus, Count Colloredo, has an undying name in the annals of art as a tyrant, who did all in his power to break the spirit, crush the hopes, and ruin the prospects of a youth, whose character was as lovely and conduct as spotless as his genius and acquirements in his art were beyond any known standard. For the festivities of his installation Mozart was ordered to compose Metastasio's opera, *Il sogno di Scipione*. It was a hasty composition, and bears more marks of being a mere occasional piece than any other from the composer's pen. In November he again reached Milan, bringing with him a part of the recitative of an opera which had been ordered, but changes in the text forced him to rewrite most of it. The singers were not yet there for whom he was to adapt the principal parts. It was already December, and only the recitative, choruses, and overture were finished. Yet on the 26th it was publicly given, and, in spite of a bad performance, was a success. It was repeated more than 20 times; but notwithstanding its success it was Mozart's last opera written for the stage in Italy—a fact which has but one solution, namely, that Hieronymus refused his concert master from that time onward, save in a single instance, leave of absence. In the autumn of 1774 came an order for a comic opera for Munich. Happily Hieronymus stood in such relations to the elector, that he could not refuse Mozart on this occasion the necessary leave of absence. The fine orchestra and excellent singers were a new spur to the young man, and this effort surpassed all his previous ones. The opera was *La finta giardiniera*, performed Jan. 13, 1775. A visit of Maria Theresa's youngest son, Maximilian, afterward elector of Cologne, to Saltzburg, was the occasion of Mozart's last youthful operatic composition; it was Metastasio's *Il re pastore*. During the next two years Mozart must be pictured filling his position as concert master at a court where there is a constant demand upon him as performer and composer. He was the favorite of all classes, and had but one enemy who was unfortunately the man upon whom he depended for subsistence. He was wretchedly paid for his services, and only by the utmost economy could the Mozart family avoid incurring debts. In those days little was to be gained by publishing music, and lessons were poorly paid. Another artistic tour was a necessity, and was determined upon. As a preparation for this, Mozart went again through a course of study in perfecting himself as a performer upon the organ, harpsichord, and violin. In the autumn of 1777 the father petitioned for leave of absence for himself and son. It was rudely refused. Wolfgang, now of age, immediately resigned his place as concert master. He was the first pianist, one of the first organists, and in the highest rank of violinists in Europe; and the author of more than 200 works, from the opera, grand mass, and symphony, down through *all* kinds and classes of compositions. He first went to Munich with his mother, but there was no vacancy for him to fill; and he then turned his steps to Mannheim, where, though he was kindly received, he could not obtain employment. He stayed here until March, 1778, partly in consequence of a passion for a beautiful young singer, Aloysia Weber. The mother and son now tried Paris, where they arrived March 23. The contest between the Gluckists and Piccinists was at its height, and they with the French composers filled the stage. Baron Grimm received the Mozarts with great kindness; but he belonged to the Italian party. He procured Mozart a few pupils, who paid him well, and they were his main dependence during his stay in Paris. Le Gros, the conductor of the *concerts spirituels*, and others, were very ready to use the young composer's talents for their own benefit, until he was forced to refuse any application for new music not accompanied by the offer of a reasonable compensation. The spring passed away, and the prospect began to improve. Le Gros ordered a symphony, which was given with the greatest applause. Just at this moment Madame Mozart died (July 8). Her death, a terrible blow to Mozart, who was one of the most affectionate of sons, was followed by peremptory orders from his father to return to Saltzburg. Leopold Mozart, so long as he lived, seems never to have conceived that his son could go alone, or be freed from his leading strings; and at this juncture in particular Paris was in his eyes a place of the greatest danger for the young man, both morally and pecuniarily. Grimm, after the death of the mother, took the son into his own house; but he felt a responsibility for his welfare from which he was anxious to be free, and urged Wolfgang to return home. The archbishop felt the need of his former concert master, and had at last made a definite proposition for his return. Fortune was evidently turning in Mozart's favor at Paris, but, hard as it was, he felt it to be his duty to obey his bereaved father, and on Sept. 26 he bade Paris farewell. The time spent there had been of the greatest value to him. He had had opportunity to make himself perfectly familiar with many of the principal works of the three great schools of opera, Gluck's, the Italian, and the purely French. His acquaintance with men of his own and other professions had been widely extended; the coming of Christian Bach from London and his friendship for Mozart opened a prospect for the future also in the English capital; the place of organist at Versailles, almost a sinecure, had been proposed for his acceptance. It was with a heavy heart that he journeyed on—lingering at Nancy and Strasbourg, turning aside to visit Mannheim again, delaying at Munich, where he met the Weber family and found that Aloysia's love for him had grown cold—so that it was already Jan. 1779, before he reached Saltzburg. Mozart, as the court calendar shows, was now "concert master and court and cathedral organist;" the salary was small, but, added to that of the father and what was earned by them and the sister by teaching, sufficed to enable the family to live in comfort, and gradually to pay the debts which the recent journey to Paris and the death of the mother had caused them to incur. The most favorable point in the new contract was, that leave of absence should be granted at reasonable intervals when necessary for the production of new works in other cities. So passed another period of nearly two years, Mozart being continually called upon for new music for church and chamber, and supplying the demand with a succession of works ever new and ever more beautiful, but which we have no space to enumerate. Of dramatic music during this period he produced only the choruses and *entr'actes* to the play of "Thamos, King of Egypt," for Emanuel Schikaneder, who came to Saltzburg with a troupe of actors, and an operetta, which, though not completed, has been published with the title of *Zaïde*. In Munich he was not forgotten, and in 1780 received the order for the opera seria for the ensuing carnival. This was *Idomeneo*, which he partially composed at home and finished at Munich. It was produced Jan. 29, 1781. Five years had now elapsed since his last work for the operatic stage. That had been in the old, formal Italian style. *Idomeneo* from the character of the text was necessarily to some extent of the same school, but bears everywhere marks of the composer's studies and observations at Paris, and exhibits throughout proofs of a genius fast becoming independent of all traditional forms. It still keeps the stage, and is the oldest, except some of Gluck's works, now to be heard on any stage. It was received with applause amounting to enthusiasm. The composer lingered in Munich through the winter, producing masses in the church and works in all forms in the concert room. Charles Theodore had now succeeded to the electorate, and had removed from Mannheim to Munich, bringing with him all his old enthusiasm for music. Mozart had hopes of obtaining a permanent appointment at this court, when he received a peremptory order from Archbishop Hieronymus to meet him at once in Vienna. Mozart and the two other musicians in the archbishop's train were not placed on a par with the domestics; they dined at a separate table with the two chamberlains and the three head cooks, the musicians sitting above the cooks. The archbishop exhibited his concert master both as performer and composer, but took special care that he should have no opportunity of playing where his performance could add to his miserable income; and only through the persistency of men to whom Hieronymus dared not say no, had Mozart opportunity to play in the grand annual charitable concert. The impression made by him on this occasion was a new thing in the annals of music, even in Vienna. This success is the only known reason why early in May Mozart was suddenly ordered to return to Saltzburg. An accident caused him to delay a few days; when ready to depart he called upon his master to excuse himself and take leave, and was received with a torrent of abuse. For 6 weeks the young man, remembering the position of his father, had borne the indignities to which he was subjected in silence, but this was too much. "Finally, my blood," wrote he, "was too much excited, and I said: 'Your reverend and princely grace is then dissatisfied with me?' 'What! do you threaten me? You scoundrel—oh, you scoundrel!—with such a miserable boy I will have nothing to do.' So at last I said: 'Nor I with you any more.'" The next day Mozart sent in his demand for a dismissal from the archbishop's service. Four weeks passed, and no answer. The archbishop supposed the storm would pass over, but on June 8 Mozart handed in another petition. He was received by Count Arco, "master of the kitchen," who loaded him with vile epithets, and finally kicked him out of the room. Nothing but the stern remonstrances of the father prevented the son, diminutive as he was, from publicly calling Arco to account. No reason has ever been suggested for the hatred of the archbishop, except that both Mozarts were men of independence who disdained to play the part of flatterers. Mozart, now 25 years old, was cast upon his own resources, a position for which unhappily his education had but ill fitted him. He gave lessons and concerts, published music by subscription, and had no serious difficulty in obtaining the means of subsistence. At all events he was independent, was universally honored, respected, and liked, save by his opponents of the Italian school, Salieri at the head, and was happier than he had been for years. For some months he resided in the family of his old friends the Webers, now established in Vienna, where Aloysia, who had married Lange the actor, was engaged as a singer. The emperor Joseph was busied at this time with his project of establishing a German opera. He was always friendly to Mozart, and ordered a composition from his pen for the new company. This was the opera "Belmont and Constanza." Mozart received the text in July, 1780, and soon had the music finished. But he had to encounter all the opposition which the singers and orchestra could make, urged on by the Italian party; and it was not until July 12, 1782, that the opera was produced, and then only by express command of the emperor. It was an almost unexampled success. The work soon made the tour of Germany, and now after nearly 80 years have passed it still remains a favorite comic opera. While engaged in the composition of this work, Mozart had found that Constanza Weber was fast assuming that place in his heart which her more beautiful sister had formerly held, and tradition says that some of the exquisite music given to the lovers in the opera had its inspiration in his own emotions at that time. The envy which Mozart's success excited led to the circulation of stories dishonorable to him and Constanza Weber—stories with no foundation whatsoever. Leopold Mozart seems to have heard of them, for only after months of earnest entreaty did he give an unwilling consent to the marriage, which took place Aug. 4, 1782. Except in one respect Mozart could have made no better choice; though not extravagant, neither he nor his wife understood economy. They had several children, of whom two only survived infancy. Mozart had no reason to complain of the musical public, which was in those days small. No concerts had so large a list of paying subscribers as his; no teacher received a larger reward for lessons. As to publishing music, that for some years after Mozart's time had not become a very sure means of income. Even in case of operas, when a work was once delivered and its price (100 ducats for each of Mozart's) paid, the composer seldom derived any further advantage from it, the copyist of the theatre being usually called upon to furnish the score to any other stage which might choose to bring out the new work. It is clear that had Mozart and his wife understood the management of their income, as his father and mother had done, no pecuniary difficulties would have troubled him. As it was, at his death his debts were but 3,000 florins, some $1,200 or $1,500. In history Mozart occupies quite another place during those years from that in which his contemporaries beheld him. They saw a young man opening a new path and struggling upward. Gluck, Bono, Salieri, Starzer held the places which Mozart hoped in time to reach; but upon his settling in Vienna there was no vacancy. Joseph soon gave up his idea of a German opera, his taste being formed upon and remaining faithful to the Italian school, at this time represented by the popular Salieri. In 1783, as the Italian company had now complete possession of the stage, Mozart determined to obtain a libretto for himself. He applied to Varesco of Saltzburg, the author of the text to *Idomeneo*, who came at once to his assistance with *L'oca del Cairo*. During a visit home, Mozart obtained the first act and set most of it to music. Upon reflection he found it so destitute of stage effect, that he laid it aside until proper changes in the plot could be made. It was never finished. Another libretto, author unknown, was *Lo sposo deluso*, to which he composed several pieces and then laid it also aside. A few airs to a third exist among his manuscripts. One of Mozart's friends and admirers, in whose house he for a time had lived, was the baron Wetzlar. Through him the composer became acquainted with the new court poet, Da Ponte. The latter, having reason to be dissatisfied with Salieri, and conceiving that texts written by him had been unsuccessful through the inadequacy of the music, offered to prepare a libretto for Mozart. Beaumarchais' "Marriage of Figaro" was just then exciting an extraordinary sensation in Paris. Mozart saw the capabilities of the subject, and proposed to Da Ponte to make it the theme of an Italian opera text. That poet and composer should not lose their labor, Baron Wetzlar offered them a handsome remuneration in case they should not be able to bring the work upon the stage. Da Ponte began his work in the autumn, and as he gave scene after scene to Mozart, it was immediately set to music; and in 6 weeks the work was finished. Happily a new opera was just then needed. The poet saw the emperor, and related to him these particulars. As a play the "Marriage of Figaro" had been forbidden in Vienna; but the changes necessary to fit it for the operatic stage were so numerous, that the emperor finally gave permission for the performance, and ordered it to be put at once in rehearsal. The Italian party, Salieri at the head, felt the danger of having Mozart too fully appreciated. At the first performance, May 1, 1786, Mozart was obliged to go to the emperor's box after the first act to inform him that several of the singers were purposely singing false and laboring to prevent his success. This was effectual. None of Mozart's successes had been more triumphant. His opponents from this time wrought in secret, and prevented so far as possible its repetition; and it was given but 9 times, when Martin's *Cosa rara*, with its light pleasing music, long since forgotten, was received with a storm of applause, which caused the managers to withdraw *Figaro* wholly from the stage for the next two years. Before the close of the year *Figaro* was given by excellent singers and a noble orchestra in Prague. It ran the entire winter, always with crowded houses. Its success was such that Mozart was induced to visit that city. His stay there was one of the happiest periods of his existence. He and his wife were guests of Count Thurn, which threw them into the society of the highest classes, who honored him with real Bohemian enthusiasm. His concerts filled the theatre to the last place. No opera was given but *Figaro*. In the joy of his heart he said to Bondini, the director, that he must write an opera for his company. Bondini caught at the word, and when Mozart returned to Vienna, in Feb. 1787, he was under contract to compose an opera for the usual 100 ducats. He lost no time in seeing Da Ponte, whose first text for him had proved so excellent. The poet proposed a libretto upon the old legend of Don Giovanni, which for two centuries or more had been a favorite subject for the theatre, had been wrought out in all the modern languages, not excepting the English (Shadwell's "Libertine Destroyed," performed in London in 1676), and was familiar to the Vienna public in several forms, one of them a ballet with music by Gluck. In September Mozart returned to Prague to finish his work and bring it upon the stage. A splendid performance of *Figaro*, given in honor of Prince Anton of Saxony and his wife, only increased the high expectations of the Prague public in regard to the new work, which was given for the first time on the evening of Oct. 29, the overture being played without rehearsal from parts still moist from the pens of the copyists. Though finished, Mozart did not write it out until the night before. The composer had never yet failed of success in any dramatic work which had been put upon the stage, but perhaps none, not even *Idomeneo* in Munich, had upon its first performance been received with the unbounded applause which on this evening followed number after number of *Don Giovanni*. On Nov. 3 it was given for the 4th time, and for the benefit of the composer; the house was crowded, and the receipts in proportion. Just as he reached Vienna again, Gluck died of apoplexy (Nov. 15). This made an opening for Mozart, and Joseph (who knew also that the composer was only awaiting adequate proposals to go to London) appointed him one of his chamber musicians, a sinecure with a salary of 800 florins. That the salary was so small was owing doubtless to unkind offices of his enemy Strack, chamberlain to the emperor; still it was higher than any other chamber musician received. Leopold Mozart did not live to hear of this, nor of his son's successes in Prague. A report of the first performance of *Don Giovanni* had appeared in the *Wiener Zeitung*, a novelty in its columns then, and excited a desire in Vienna to hear it. Joseph had his curiosity also aroused, and, really having a kindness for the composer, as soon as certain new works of Salieri and Martin had worn off their novelty, he commanded the production of *Don Giovanni*, in terms which left the Italians of the opera house no choice but obedience. It was given May 7, 1788, and was very coldly received. The emperor said to Da Ponte: "The opera is divine! perhaps finer than *Figaro;* but it is no food for the teeth of my Viennese." Da Ponte repeated this to Mozart. "Let them have time to chew upon it," said he. Da Ponte used his influence to have the performances of it follow each other as rapidly as possible, and the result was an astonishing success. The audience, at first surprised by its novelties, had not comprehended it. At this time a new sphere of activity opened for Mozart. Starzer, the music director of the great oratorio performances, which were organized by Van Swieten, son of the great physician of that name, died, and Mozart was engaged in his stead. In Handel's time the deficiencies of the orchestra were compensated by the organ; but, as the performances in Vienna took place in halls where there was no organ, it was necessary to supply its place by additional orchestral parts. Four of Handel's works were arranged by Mozart for Van Swieten: "Acis and Galatea" in Nov. 1788; "The Messiah" in March, 1789; "The Ode for St. Cecilia's Day" and "Alexander's Feast" in July, 1790. Notwithstanding Mozart led at this epoch a life of herculean labor, teaching, composing, and giving concerts, his pecuniary condition was gradually becoming a cause of great anxiety to him. He was plundered of his labors by singers and performers of all kinds and degrees, and of his hardly earned gold by false friends, who stole under the polite name of borrowing. His fame was however extending, and his works, notwithstanding their novelties, gaining a universal appreciation. He had been long laying the foundation upon which nothing but an early death could prevent him from raising a glorious edifice; he had planted the seeds, which must inevitably produce him a rich harvest both in reputation and pecuniary reward. But the time was not quite yet. It was a most welcome invitation which he received from Prince Charles Lichnowsky in the spring of 1789 to share his carriage and journey with him to North Germany. They left Vienna April 8, and reached Dresden upon the 12th. In this city Mozart played at court, receiving a golden snuff box in return. In Leipsic his reception was all he could wish. Doles, a pupil and successor of Bach in the Thomas school, found his organ playing precisely that of his old master. Every thing conspired to raise the spirits and hopes of Mozart. In Berlin, Duport the great violinist used all his influence against him with the king, but with no success. Frederic William II. was too good a musician and understood Mozart's music too well to be influenced by the intriguing Frenchman. The king, too, upon further acquaintance with Mozart, took such a liking to him personally as one day to offer him the place of chapelmaster with 3,000 thalers salary. Mozart felt himself bound, out of regard to the emperor, to refuse the offer at least for the present. The king told him it should remain good for a year and a day. After an absence of some 3 months Mozart returned to Vienna. The pecuniary results of the journey were not very splendid, and a dangerous sickness of his wife which soon followed exhausted them. For a quartet which he now wrote and sent to the king of Prussia, he received a gold box containing 100 friedrichs d'or. Upon his return from Berlin he had said nothing at first of Frederic William's offer; but, urged by his friends, he at length saw the emperor, explained the sad condition of his pecuniary affairs, and closed by requesting his dismissal. Joseph was very unpleasantly surprised, and exclaimed with emotion: "What! you will leave me, Mozart?" Mozart was touched, and replied: "Your majesty, I throw myself upon your mercy, and will remain." Joseph was now bound by every honorable consideration to provide for him, nor was the disposition wanting. The opera *Cosi fan tutte* was placed in his hands for composition. It was produced Jan. 26, 1790, and was running successfully, when the emperor died, before he had given the composer any certain provision beyond his 800 florins as chamber musician. It was sufficient for the new emperor, Leopold, that Mozart had been favored by Joseph; and Mozart's two petitions, one for the now vacant chapelmastership, the other to be appointed pianoforte instructor of the young princes, were refused. Indeed, Leopold's enmity went so far, that when the musicians in Vienna were called to court to play before the king of Naples, Mozart was ignored. In the autumn Mozart visited Frankfort-on-the-Main, Mentz, and Mannheim, upon occasion of the coronation of Leopold as German emperor. He gained much fame, and gave successful concerts; but his expenses were necessarily so large, that he brought home but little money. In Munich he was invited to court to play before the king of Naples, who happened to be there. "Very honorable to the court at Vienna that the king could only hear me in a foreign land!" he wrote to his wife. He was still poor and pressed for money, but fortune was at length turning. Soon after his return John Peter Salomon came to Vienna to engage Haydn to compose for and direct in his concerts at London for a season or two—an engagement of the highest value to him, as it proved; and Mozart was engaged to follow. Early in the spring his old acquaintance Schikaneder, now established in Vienna, and proprietor of the small theatre in the suburb of Wieden, where fairy dramas and farcical comedies were given for the populace, applied to him to compose the music to one of these magic pieces. Mozart agreed to do so, but said he could not be responsible for its success, as he never had tried his hand at this kind of composition. The subject was the *Zauberflöte*, or "Magic Flute." Constanza Mozart was in Baden at the sulphur baths, and her husband while engaged upon the *Zauberflöte* was therefore thrown much more exclusively into the society of Schikaneder, a votary of wine, women, and a rich table. With him and his merry companions the disappointed and harassed composer could forget his troubles. The manager caused the champagne to flow freely, heaped the table with delicacies, and for some 10 or 12 weeks, the first and only time in his life, was Mozart induced to break in upon his temperate, even abstemious habits. It is due to his memory to state this, and deny in the most emphatic manner the stories which have found footing in all musical literature to the disadvantage of his reputation, except in so far as they are founded upon this short period. One other point deserves a word. Rochlitz has recorded that Schikaneder cheated Mozart not only out of his remuneration for the composition, but out of the score afterward. Jahn has proved that Rochlitz in his anecdotes of Mozart is full of mistakes, not to use a harsher term. Seyfried assures us that Schikaneder paid the composer 100 golden ducats. On May 9 the magistrates of Vienna appointed Mozart as adjunct and successor to the chapelmaster Hoffman, of St. Stephen's church, the best musical position except the imperial chapelmasterships in Vienna, and one exceedingly to his taste. In July a messenger unknown to Mozart—his name was Leutzeh—brought him an anonymous letter in which, after speaking warmly of the composer's genius, his terms for a requiem were demanded. Mozart gave them, and soon after the messenger returned and paid him 50 ducats (or according to some authorities 100) in advance. Da Ponte, now established in London, had written to him to come thither and produce his operas, to which Mozart replied that the *Zauberflöte* would render the journey impossible under 6 months. This was not all. In August came an order from the magistrates of Prague to compose the opera "Titus," to be performed Sept. 5, upon occasion of the coronation of Leopold as king of Bohemia. But 4 or at most 5 weeks remained for the entire labor of composition and rehearsal of the *Clemenza di Tito*, one of Metastasio's texts. With all speed Mozart made his preparations, and, taking his wife and his pupil Süssmaier with him, he started for Prague. As they were entering the carriage at their own door, some one pulled Mme. Mozart by her dress. She turned, and saw the man who had ordered the requiem. Mozart explained the necessity of the present journey, and promised that that work should be his first labor upon his return. On reaching Prague there were but 18 days left before the opera was to be given. Fortunately for him, his pupil was so thoroughly acquainted with Mozart's style of composition, that his master could give the score into his hands after the vocal parts were written and the accompaniment sketched, to be filled out. In this manner the work was completed in time. It was not however received as his other operas had been, which is easily to be accounted for, both in the character of the libretto, and in the fact that such a subject was hardly one fitted for an occasion when all Prague was in the mad excitement of a coronation. The opera afterward became very popular, and still keeps the stage. In September Mozart reached Vienna again, sick and disappointed, to divide his time between the "Magic Flute" and the requiem. On the 30th of that month the opera was given, Mozart directing. To the end of the first act the audience remained cold, but warmed up before the close, and Mozart was called before the curtain. But with each performance its popularity increased. In October alone it was given 24 times. Operatic history gives no instance of a drama so feeble, which became so universally popular. Perhaps the greatest compliment that could be paid it is the fact that Goethe wrote a second part to it. Now came the requiem, to which Mozart gave all the strength of his powers, all the force of his genius. As he had been unable to learn the name (a Count Wallsegg) of him who had ordered it, he began to fancy something supernatural in the affair. In fact, the anxieties of the preceding year, possibly the change in his habits while under the influence of Schikaneder, and his too great exertions upon the "Titus" (he was ill when he went to Prague, and came home still more so), all together had reduced him and brought his nervous system into a condition which required a long period of rest and recreation. This he denied himself. He had had several fainting fits while engaged upon the *Zauberflöte;* and the restless energy with which he now wrought upon the requiem enfeebled him daily. His wife became anxious, called a physician, and took away the score. He fancied that some one had given him poison. In November he was so much better as to write a cantata for the masonic lodge to which he belonged, "Praise of Friendship." Just at this time a sort of rheumatic inflammatory fever was epidemic in Vienna. In the enfeebled state of Mozart's naturally delicate constitution, it seized upon him. Inflammation of the lungs led to dropsy of the chest, and after two weeks' confinement to his bed he died. On the last day of his life he busied himself with the requiem, which he now fancied he was composing for his own obsequies, but died leaving it unfinished. The widow was in no position to return the money which had been received for it, and the question was whether it could not be completed from the rough notes made by the deceased; but for several portions no such memoranda existed. Süssmaier had, however, so often conversed with Mozart upon the plan of the work, and had become so thoroughly familiar with his style, that he undertook to finish it. As his hand had a remarkable similarity to that of his master, this now came into play. All that Mozart had written was copied, and the rest, consisting of the close of the *Lacrimosa*, the *Sanctus*, the *Benedictus*, and the *Agnus Dei*, was added by him, save that to the words *Cum sanctis* he repeated the fugue of the *Kyrie.* When the messenger came for the requiem, this score was given him; and its authenticity as a manuscript from Mozart's hand was never suspected by Wallsegg until the topic began to be discussed by the press. While Mozart lay sick, the Hungarian nobility secured to him an annual pension of 1,000 florins, and a musical association in Amsterdam a still higher annuity, for which he was to deliver certain compositions annually.—In this sketch, being confined to the leading points in the life of the composer, we have been unable to give any adequate idea of the vastness of the mass of his compositions during his short life of 36 years. More than 800 works are known—for the pianoforte in all forms, variations on a simple theme, works for two pianofortes, and up through all gradations to the concerto, with full orchestra; for orchestral instruments of every kind, from solos to the grand symphony; there are even compositions for Franklin's harmonica, and a piece for a musical clock. Equally universal is he in vocal music, from songs and airs for every kind of voice, to the opera and church music in all its forms as employed in the Roman Catholic service. But it is not so much the quantity as the excellence of his music which excites the astonishment of the musician. This was owing not more to the greatness of his genius than to his profound studies, which from infancy to the close of his life never ceased. During the rehearsals of *Don Giovanni* at Prague, in a conversation with the chapelmaster Kucharz, he remarked, in reply to praises of the new work: "People err if they think my art has cost me no trouble; I assure you, my dear friend, no one has taken such pains with the study of composition as I. There is hardly a celebrated master in music whom I have not carefully, and, in many cases, several times, studied through." Hence it was that he could so infallibly decide upon the originality of his musical ideas, and always avoid whatever did not bear the stamp of his own genius. Two generations of musicians have been educated upon the works of Mozart. His ideas have become common stock; and effects which, if now introduced into a composition, would sound hackneyed, were in his works the joint production of lofty genius and profound contrapuntal knowledge, guided and restrained by exquisite taste. As an instrumental composer perhaps one only has surpassed him, Beethoven; but Beethoven had his works to study. Haydn had developed the quartet form and invented the grand symphony. Mozart gave them a new spirit, and one sees his influence in all Haydn's later works. That great master said to Leopold Mozart in 1785: "I tell you before God and as a man of honor, that I look upon your son as the greatest composer of whom I ever heard; he has taste, and possesses the most thorough knowledge of composition." The symphony in C with the fugue is alone sufficient proof of the correctness of Haydn's opinion; it is the greatest work of the kind ever written before Beethoven. It was as an operatic composer, however, that Mozart reached a height upon which, like Handel in oratorio, and Bach in his own contrapuntal sphere, and Beethoven in orchestral music, he stands superior to all his predecessors.—KARL, his last surviving son, attended the centennial celebration of his father's birth at Saltzburg in 1856, and died at Milan, Oct. 31, 1858, leaving a large fortune.

MUCILAGE, in pharmacy, a solution of gum or other similar body in water. It is employed chiefly in the formation of pills and for the diffusion of insoluble substances in water. Mucilage of gum Arabic is a preparation much used as a paste. Its tendency to become sour by standing is checked by the addition of a few drops of any essential oil.—Berzelius applied the term mucilage to a proximate vegetable principle distinguished from gum by being insoluble in cold water. In boiling water it swells and forms a mucilaginous viscid body, which loses its moisture when placed upon porous paper, and contracts like starch in the gelatinous state. This is not, however, properly a distinct proximate principle, as it embraces a number of different bodies, as bassorine, cerasine, &c.

MUCIUS SCÆVOLA. See SCÆVOLA.

MUCK. See BOG EARTH.

MUCOUS MEMBRANE. See MEMBRANE.

MUCUS, the fluid which moistens the mucous membranes, the secretion of their numerous glandulæ or follicles; these are lined by cylinder epithelium, the coating of mucus being furnished by the continual disintegration and renewal of its component cells. Mucus consists in great part of epithelial cells floating in a clear viscid fluid; it is generally alkaline, and contains, according to Berzelius, when these particles have subsided, 5¼ per cent. of proper mucous matter; pure mucus, according to Scheerer, contains 52.17 per cent. of carbon, 28.18 of oxygen, 12.64 of nitrogen, 7.01 of hydrogen, and 4.10 of saline matter. Its properties are variously altered by disease, sometimes becoming acid, mixed with pus, or otherwise changed. All secretions poured upon mucous membranes are more or less mingled with mucus, as the saliva, biliary and other digestive fluids, and the urine. From the saliva it subsides as an opaque whitish matter; it forms the residue after bile is treated with alcohol, and to its presence is probably due the rapid decomposition undergone by biliary matter; from urine it generally falls as a delicate film, but in inflammations of these passages is poured out in great quantities, quickly undergoing decomposition, and exciting ammoniacal changes in the urea, passing off as a thick tenacious sediment; it also becomes very thick in inflammations of the respiratory and alimentary passages. Its principal office is to protect the mucous surfaces from injury by the contact of foreign substances or the action of normal or diseased excretions and secretions, and to lubricate the canals in which they pass in or out of the body.

MUD FISH (*amia*, Linn.), a genus of American ganoids, found in the fresh waters of the United States. After having been referred by ichthyologists to cyprinoid, salmonoid, and clupeoid fishes, Vogt discovered it to be a ganoid, having found in the muscular arterial trunk 2 oblique rows of 5 or 6 valves each and a spiral intestinal valve. Müller considers it the living representative of a ganoid family, like the fossil *megalurus*, *leptolepis*, and their congeners. The body is long and flexible, with a bony vertebral column; there are no spiny plates on the anterior border of the fins as in the gar fish, nor a series of separate dorsal fins as in *polypterus;* the mouth is trout-like, except in the absence of lingual teeth; there are 2 nasal cirri; the head is flat, and the bones under the very thin skin are sculptured plates; the large sublingual bone is naked and furrowed, the gill openings large, and the branchiostegal rays broad and flat, 11 or 12; tongue thick and fleshy; behind the conical teeth of the jaws are flat pavement-like ones; the scales are horny rather than osseous, flexible and rounded, yet presenting bone corpuscles of the same form and character as *lepidosteus* and other ganoids; the ventral fins are median, the single dorsal long, and the anal short; the caudal comes further forward above than below, rounded, giving an indication of the heterocercal tail. The larger air bladder is cellular and lung-like, communicating with the œsophagus; no pancreatic cæca; ova dropping into abdominal cavity. Of about 10 species, the best known is the western mud fish (*A. calva*, Linn.), from 1½ to 3 feet long; the back of the head is bluish black, the sides often obscurely spotted with olive, white below, and with a black spot at the upper edge of the caudal. It is found in the great northern lakes, south to Carolina, and west to the Mississippi; it is the bowfin of Lake Champlain, the dog fish of Lake Erie, and the marsh fish of the Canadians; it feeds on crawfish and other crustaceans, and is occasionally eaten by the Indians. This may include several species.

MUD HEN. See Coot.

MUDGE, William, an English engineer, born in Plymouth in 1762, died in London, April 17, 1821. He was educated at Woolwich, entered the artillery, served on the continent, and after his return to England became assistant to Lieut. Col. Williams, whom he ultimately succeeded as superintendent of the trigonometrical survey of England and Wales. In 1799 he published, in conjunction with Mr. Isaac Dalby, one of his associates, the first volume of "An Account of the Survey from the Commencement in 1784 to the End of the Year 1796." The 2d and 3d volumes of this work, continuing the account to 1809, appeared in 1801 and 1811. He was successively promoted to the rank of captain, major, lieutenant-colonel, and major-general in the army. During the latter part of his life he was also lieutenant-governor of the military academy at Woolwich.

MUDIE, Robert, a Scottish author, born in Forfarshire, June 28, 1777, died in London, April 20, 1842. He was entirely self-educated. In 1802 he was appointed professor of Gaelic and teacher of drawing in the Inverness academy. In 1820 he went to London, and became a reporter for the "Morning Chronicle," but was afterward involved in difficulties, and his career ended unhappily. He is said to have written and published over 80 volumes, of which his works on natural history and philosophy are the most valuable and interesting. The principal of these are: "The British Naturalist;" "The Feathered Tribes of the British Isles;" "The Elements: the Heavens, the Earth, the Air, the Sea;" "Popular Astronomy;" "The Four Seasons;" and "Man, Social, Intellectual, Moral, Physical."

MUEZZIN, an officer of a mosque in Mohammedan countries, who calls the faithful to prayer at the 5 times in the day prescribed by the Koran, viz.: at dawn, noon, 4 P. M., sunset, and nightfall. He commonly stands on the balcony of a minaret and chants in a loud voice the following formula: "God is great! There is no God but Allah, and Mohammed is the prophet of God! Prayer is better than sleep! Come to prayer!" As from his elevation on the minaret the muezzin can overlook the roofs and the interior of dwellings, which is extremely distasteful to the jealous orientals, it is usual to confer the office on blind men; and many curious tales are current in the East of men who have feigned to be blind in order to become muezzins to wealthy mosques.

MUFTI, a Turkish doctor of divinity, or of the law of the Koran. There is one in every large town. The mufti of Constantinople, or grand mufti, called also *Sheikh-ul-Islam*, "chief of Islam," is the head of the Turkish church. He takes rank immediately after the grand vizier, and has great authority and influence. Though he is appointed by the sultan and holds office at the imperial pleasure, he cannot like other officers be legally put to death nor stripped of his property. He is the chief interpreter of the law, and formerly no person could be subjected to capital punishment without his consent. His opinion was required by placing before him a written statement of the case with fictitious names; and, without assigning any reasons, he gave his judgment by writing on the document: "He shall (or shall not) be punished;" or in a doubtful case: "God knows best." The reorganization of the Turkish government, and the establishment of a ministry like that of other European nations, has of late years much curtailed the power and prerogatives of the grand mufti.

MÜGGE, Theodor, a German novelist, born in Berlin, Nov. 8, 1806. He was in commercial and military life previous to his academical studies. Among his more important novels are: *Die Vendéerin* (3 vols., Berlin, 1837); *Tänzerin und Gräfin* (2 vols., Leipsic, 1839); and particularly *Toussaint Louverture* (4 vols., Stuttgart, 1840), which gives graphic descriptions of the struggle in Hayti. Among his more recent productions are *Der Weihnachts-Abend* (Berlin, 1853), and *Afraja* (1854). The latter, a Norwegian and Lapland tale, was translated into English by Edward Joy Morris (Philadelphia, 1854; 4th ed., 1858), and a French translation of it is included in the *Collection des meilleurs romans étrangers* (Paris, 1857). An English translation of his "Switzerland," edited by Mrs. Percy Sinnett, was published in London in 1848. He was in 1850 one of the founders of the *Berliner Nationalzeitung*, and for some time conducted its literary department.

His novel *Avro Spang*, treating of Norwegian life, was published in 1860.

MUGGLETON, Ludowick, an English fanatic, who in conjunction with John Reeve founded the sect of the Muggletonians, born in 1609, died in March, 1698. In 1651, abandoning his trade, that of a tailor, he proclaimed himself and Reeve the "two last witnesses" mentioned in the Apocalypse, and armed with power to prophesy and to punish men. They commenced their mission by denouncing all religious sects, especially Ranters and Quakers. In 1656 appeared an exposition of their doctrines under the title of "The Divine Looking Glass." They held that God has the body of a man, that there is no distinction of persons in the Trinity, and that God, descending to earth and suffering on the cross, left Elias as his vicegerent in heaven during his absence. They were attacked by William Penn in a book called "The New Witnesses proved Old Heretics." Muggleton was arraigned at the Old Bailey for blasphemy in 1676. The first complete edition of his works was published in 1756. In 1832 another edition appeared in 3 vols. 4to., which included not merely his own rhapsodies, but also those of his coadjutor Reeve, together with several tracts by others of the sect.

MUHLENBERG. I. Peter, a major-general in the American revolutionary army, son of Henry Melchior Muhlenberg, D.D., the founder of the German Lutheran church in America, born at Trappe, Montgomery co., Penn., Oct. 1, 1746, died near Philadelphia, Oct. 1, 1807. He was educated for the ministry, was ordained in England, and preached at Woodstock, Va. His last sermon was upon the duties men owe their country; and saying: "There is a time for all things—a time to preach and a time to fight—and now is the time to fight," he stripped off his gown after the service, appeared in full uniform, read his commission as colonel, and formed a regiment among his parishioners. He participated in several battles, was made brigadier-general in 1777, and major-general at the close of the revolution. After the war he removed to Pennsylvania, where he was elected a member of the supreme executive council, and in 1785 became vice-president of the commonwealth. He served as representative in congress from 1789 to 1791, from 1793 to 1795, and from 1799 to 1801. In 1801 he was elected U. S. senator, but resigned the next year, and was appointed supervisor of the revenue for the district of Pennsylvania. From 1803 till his death he held the office of collector of the port of Philadelphia. II. Henry Ernst, D.D., an American clergyman and botanist, brother of the preceding, born in New Providence, Montgomery co., Penn., Nov. 17, 1753, died in Lancaster, May 23, 1815. At the age of 10 he was sent to the university of Halle in Germany, and remained there till 1770, pursuing a course of literary and theological study. In that year he returned to America, was ordained by the Lutheran synod, and became in 1774 third minister and assistant to his father, then pastor of the Philadelphia congregation. During the occupation of Philadelphia by the British in 1777, he retired to the country, where he devoted himself to the study of botany. In 1780 he became pastor of the church at Lancaster, and there remained till his death. His scientific attainments were extensive, but in botany he was especially distinguished. He became a member of the American philosophical society in 1786, of the *Gesellschaft Naturforschender Freunde* in Berlin in 1798, of the philosophical and physical societies of Göttingen in 1802, and of various other associations in Sweden and Germany. His chief works are: *Catalogus Plantarum Americæ Septentrionalis* (Lancaster, 1813), and *Descriptio Uberior Graminium*.

MÜHLENBRUCH, Christian Friedrich, a German jurist, born at Rostock, Oct. 3, 1785, died in Göttingen, July 17, 1843. He was successively professor at Rostock, Greifswalde, Königsberg, Halle, and from 1833 till his death at Göttingen. He ranks among the most eminent jurists of the present century. Among his works are: *Doctrina Pandectarum* (Halle, 1823–'5), and *Lehrbuch des Pandektenrechts* (1836–'7), which have passed through many editions.

MUHLENBURG, a W. co. of Ky., bounded N. E. by Green river and W. by Pond river, its principal branch; area, 430 sq. m.; pop. in 1850, 9,809, of whom 1,522 were slaves. The surface is hilly and the soil generally fertile. It contains coal and iron mines near Green river. The productions in 1850 were 495,328 bushels of Indian corn, 74,020 of oats, 685,050 lbs. of tobacco, and 20,250 of wool. There were 10 grist mills, 5 saw mills, 1 tannery, and 37 churches. Capital, Greenville.

MÜHLHAUSEN, a town of Prussia, province of Saxony, on the Unstrutt, 20 m. N. W. from Erfurt; pop. about 14,000. It is surrounded with walls, and was formerly a free city of the empire. It is chiefly memorable for having been the head-quarters of Münzer, the leader of the peasants' war, and the scene of his execution in 1525.

MÜHLHAUSEN, a town of France. See Mulhouse.

MULATTO (Sp. *mulato*, from *mulo*, a mule), the offspring of parents one of whom is black and the other white. The mulatto is of yellowish color with frizzled hair, and in features and disposition exhibits commonly more resemblance to the white than to the black race. Mulattoes are numerous in the United States, and are still more abundant in the West Indies and in Spanish and Portuguese America. In the old world many individual mulattoes are found in Turkey, Arabia, Persia, and India, and on all the coasts of Africa. In south Africa the people called the Griquas are mulattoes, descended on one side from the Dutch and on the other from the Hottentots. In northern Africa the population of Egypt and of the Barbary States has been from remote antiquity to a great degree of mulatto origin. The republic of Dominica in the island of Hayti, the oldest civilized community in the western hemisphere, is almost entirely composed of mulattoes.

MULBERRY, the name of various trees and their fruit, belonging to the natural order *urticaceæ*, and constituting a group by themselves. The black or common mulberry (*morus nigra*, Linn.) is a deciduous tree, native of Persia, growing from 20 to 30 feet high, with an irregularly branching top, cultivated in England ever since 1548. The leaves are broadly heart-shaped, unequally serrate, and very rough; the fruit is sessile, of a dark purple color, and, though called a berry, is in fact a spike, composed of the succulent, conglomerated axes, calyces, and carpels. The flowers of the mulberry tree are either monœcious or diœcious, and have a 4-parted calyx, ovate sepals, 4 stamens, the filaments of which elastically expand, an ovary of 2 cells, one of which disappears, and 2 filiform styles. It is asserted that this species lives for a long time, individual specimens of the tree being known in England more than 300 years old. Its roots are equally tenacious of life. The ancients seem to have been acquainted with the species, it being mentioned by Ovid and Pliny, the latter calling it the "wisest of trees," because it is so slow in putting forth its leaves. Mention is likewise made of it in the Sacred Scriptures. Shakespeare's mulberry, which was planted in his garden at New Place, Stratford, was the black mulberry, as is well ascertained. The black mulberry is cultivated for its fruit, which is very wholesome and palatable. When to be used at the dessert, it should be freshly gathered and be so ripe as to drop from the tree. From the fruit a sirup is prepared, thought excellent for sore throats; and sometimes its juice is mixed with that of apples, forming a deep port-wine-colored beverage known as mulberry cider. The black mulberry grows very well as far north as Massachusetts, and Downing mentions it as thriving on the Hudson river 80 miles above the city of New York. It may be propagated from seeds, cuttings, or layers, the last being the surest and best way, as thereby the finest varieties having monœcious flowers can be secured. It thrives best in a light, rich, and moderately dry soil.—The red mulberry (*M. rubra*, Linn.) is a native species, with large, rough, heart-ovate, serrate (and on the younger shoots, lobed) leaves, and dark purple fruit, found wild in rich woods from New England to Illinois and southward. Its stem rises to the height of 15 to 25 feet or even more, with numerous spreading branches at the summit. Its flowers are greenish, small, and numerous. Its wood is exceedingly durable, and valued for making posts. Its fruit, according to Darlington, is more admired than that of any other species.—The white mulberry (*M. alba*, Linn.) is an adventitious tree from Europe, becoming naturalized around houses. Its stem attains the height of 20 to 25 feet, and has a much branching top. Its leaves, especially in the younger plants, are large, from 4 to 12 inches long, partially lobed, unequally crenate, serrate, and borne on petioles an inch long, having lance-linear stipules at their bases. The fruit, when mature, is of a pale yellow color, but sometimes inclining to a dark purple tint. It is a native of China and Persia, and was introduced into England with the black mulberry, and into America about a century since. The foliage of the white mulberry is preferred in the raising of the silkworm, although the other species will answer if their leaves are young and tender. A variety with larger foliage and of a smaller sized stem was in much repute some years since, known as the many-stemmed mulberry (*M. multicaulis*), and attracted universal attention. It was described by Kenrick ("New American Orchardist," Boston, 1835) as differing from all others in the property which the roots possessed of throwing up numerous flexible stalks, for the great length which these stalks acquired in a short space of time, for the facility of propagation from cuttings and layers, and for the thinness and succulency of the leaves; in a rich and humid soil its growth was extremely rapid, and prolonged to a late period in the autumn. Its fruit is said to be edible, and is probably similar to that of the white mulberry.—The paper mulberry (*Broussonetia papyrifera*, Ventenat) was introduced into the United States a few years ago as a shade tree; but on account of its producing so many suckers from its roots, it was soon considered unfit for the purpose. Its trunk reaches to the height of about 25 feet; its leaves are mostly undivided, roundish ovate or subcordate, rough above, downy beneath, 3 to 8 inches long, supported by petioles 1 to 3 inches in length; the flowers are diœcious, the staminate being in a sort of loose aments, and the pistillate in dense clustered heads. From the inner bark of the trunk, a kind of tough paper, used as a substitute for cloth, is prepared by the South sea islanders. The India or China paper, used for taking proofs of engravings, is also made of the inner bark. The wood however is soft, spongy, and of little value. The Japanese, according to Kämpfer, reduce the bark to a soft pulp and dry it in sheets, somewhat like the old mode of European paper making.

MULDER, GERARD JOHANNES, a Dutch chemist, born in Utrecht in 1802. He studied medicine at the university of Utrecht, and in 1825 established himself in Amsterdam as a practising physician. In 1827 he was appointed lecturer on botany and chemistry in the medical school of Amsterdam, but resigned the office in 1830 because his practice absorbed his time. In 1841 he became professor of chemistry at Utrecht, a position which he still holds. His chief work is his "Chemistry of Vegetable and Animal Physiology," translated into English by Dr. Fromberg, in which he deduced as the result of a number of original inquiries the existence in animals of a substance which he calls "proteine," which they derive ready formed from plants. The results of this discovery are announced by Dr. Johnston, in an introduction to the English edition of Mulder's work, to be as follows: "1. That this proteine formed the basis of a large group of animal substances, the albuminous group, comprising fibrine, albumen, caseine, the crystalline lens of the eye, the hair, horn, &c. 2. That in these substances the proteine was combined with oxygen, sulphur, or phosphorus, or with two of these bodies, or with all the three; and that the proportions of these separate elements determined the special qualities of each compound of the albuminous group. 3. That the sap and leaves, but especially the seeds of plants, contained proteine in combination with sulphur and phosphorus as it is found in the animal body; and that the gluten of wheat, the legumine of the bean, and the nitrogenous substances generally which are found in the seeds of plants, were compounds of this kind. 4. That these substances were formed by the plant out of the food drawn by its several parts from the air and from the soil; that it produced them for the purpose of diminishing the digestive labor, so to speak, of the animal, of supplying it with food fitted directly to form and nourish its muscular and albuminous parts; and that the animal received its whole supply of the raw material out of which these parts were to be built up from the vegetable food on which it lived." The publication of this discovery involved Mulder in a controversy with Liebig, who doubted the existence of proteine as an independent chemical compound; his reply to the latter has been translated into English by Dr. Fromberg.

MULE. See Ass.

MULGRAVE or Mille Islands, a group in the southern part of the Radack chain, which forms the eastern part of the Marshall archipelago in the N. Pacific ocean. Their extent is not very well determined, but the surrounding reefs have been examined for about 40 m., and after a careful search only one pass for ships and another for boats could be found. Some of the islands are mere coral rocks covered by the sea at high tide, but nearly all have deep water close to the reefs. When they reach the level of the water, however, they become, like the islands already formed, covered by sand and vegetation. Some of them are of considerable size, and have clumps of cocoanut and bread-fruit trees.

MULGRAVE, Constantine John Phipps, baron, an English navigator, born in 1744, died in 1792. He early entered the British navy, commanded a north-east arctic exploring expedition in 1773, and returned the same year after having reached lat. 80° 48' N., beyond which an impenetrable field of ice stretched as far as could be seen. Lord Mulgrave was afterward commissioner of the admiralty. He published a "Journal of a Voyage toward the North Pole" (London, 1774). His brother, afterward created Viscount Normanby and Earl Mulgrave, served with distinction in the British army during the American war.

MULGRAVE, John Sheffield, earl of, marquis of Normanby and duke of Buckinghamshire, an English statesman and poet, born in 1649, died Feb. 24, 1721. He was mostly self-educated. At the age of 17 he volunteered in the navy, but did not see an action, and soon after was appointed to the command of a troop of horse. In 1672 he entered the navy again, sailed under Lord Ossory, and was shortly promoted to the command of a ship; but forsook the sea a second time and raised a regiment of foot, of which he acted as colonel during the Dutch war. He entered the French service to learn the art of war under Turenne, and on his return to England was appointed lieutenant of Yorkshire and governor of Hull; but having presumed to aspire for the hand of the princess Anne, the king sent him in 1680 to relieve Tangier from the Moors, with the intention, it was said, that he should perish in the leaky vessel which carried him. On his return he was restored to favor, and on the accession of James II. was made lord chamberlain and admitted to the privy council and the high commission. He made his submission to William of Orange, was created marquis of Normanby in 1694, afterward obtained a seat in the cabinet, became lord privy seal (1702), and lord lieutenant of the north riding of Yorkshire under Queen Anne, and in 1707 was made first duke of Normanby and then of Buckinghamshire. Through jealousy of Marlborough he resigned the privy seal and joined in a motion for inviting the princess Sophia to England. On the change of ministry in 1710 he became lord chamberlain of the household. Under George I. he held no office.—Like Montague and some other titled rhymesters of the period, Lord Mulgrave is best known by what is really his slightest claim to be remembered. His most famous work is the "Essay on Satire," which he is thought by some to have written in conjunction with Dryden, and for which Dryden received a beating at the instigation of the earl of Rochester, though he probably had no hand in it beyond revising it. Lord Mulgrave's "Essay on Poetry" was praised by Dryden and Pope, but is now forgotten.

MULHOUSE, Mühlhausen, or Mülhausen, a town of France, in the department of Haut-Rhin, on the Ill, 304 m. S. E. from Paris, 19 m. W. from Basel, and 70 m. from Strasbourg; pop. in 1856, 29,574. It consists of an old and a new town; the former upon an island, the latter on the right bank of the Ill. Since the beginning of the present century Mulhouse has become one of the important seats of industry in France. Upward of 7,000 persons from the country now daily resort for employment to the town. An entirely new quarter has recently sprung up, chiefly peopled by those engaged in the manufacture of cotton prints and muslins. Cotton printing was first introduced there in the middle of the 18th century by Samuel Koechlin, whose descendants are still, under the firm of Koechlin brothers, at the head of the principal manufactures. The Naghelin spinning factory employs nearly 100,000 spindles. Most of the manufacturers of Mulhouse received medals at the French exhibition of 1855. The prosperity of the town is rapidly increasing. Mulhouse and its territory once formed part of the Swiss confederation, but were united to France in 1798.

MULL, an island of the Hebrides, forming part of Argyleshire, is situated in the Atlantic ocean, and separated from the mainland by a narrow strait termed the sound of Mull; area, 301 sq. m.; pop. in 1851, 8,369. The coast is rocky, and deeply indented. The surface is mountainous, Benmore, its highest summit, attaining an altitude of 3,168 feet. The most remarkable natural objects are the caverns and basaltic columns and arches that occur around its shores. The soil is chiefly devoted to pasturage. Herring and white fish are caught off the coasts. Mull is subdivided into 3 parishes, and contains several villages, the most important of which is Tobermory near the N. E. extremity of the island.

MULLEIN, the name of biennial herbs of the genus *verbascum*, belonging to the natural order of *scrophulariaceæ*, having a persistent calyx, an irregular, personate corolla, 5 stamens, the 5th being destitute of anther, or only 3 stamens, the 2d pair being suppressed or abortive. The common mullein (*V. thapsus*, Linn.) is a tall plant, introduced from Europe, and growing universally upon thin, sandy, and sterile soils, marking by its excessive abundance a negligent husbandry. The lobes of the corolla are only a little unequal, the stamens are 5 in number, all the filaments of which, or at least the 3 upper, are woolly; the style is flattened at its apex; the capsule is ovoid or globose, and filled with numerous, rugose-pitted seeds. The flowers are conspicuously showy, in a dense terminal spike, and of a handsome bright yellow color. The entire plant is covered with a hairy, tomentose pubescence, which renders the large radical leaves soft, like the cloth of velvet; the hairs are stellate, each hair composed of 7 primary rays with smaller and more delicate intermediate ones. The properties of the mullein, according to Lindley, are poisonous in the seeds and flowers; the foliage is acrid and bitterish. As a domestic remedy in sore throat, the broader leaves are dried and bound around the throat to produce a slight local irritation. Were it not for its rapidity in covering neglected fields by the vegetating of its innumerable seeds falling around, the mullein might be more esteemed on account of its commanding and showy exterior, and perhaps hold a place in the garden. The moth mullein (*V. blattaria*, Linn.) has a stem 2 to 5 feet high; its leaves are 2 to 6 inches long, the lower differing in shape from the upper, which are sessile and clasping, while the former are petiolate and sometimes pinnatifid; its flowers are borne upon a long, leafy raceme; each flower is exserted on a pedicel about an inch long, which renders the spike lighter and more open; the color of the flowers is either a bright yellow or white tinted with purplish. The moth mullein has become a rather familiar weed in Pennsylvania; in Massachusetts it is only seen by the wayside as an estray from some garden. Under cultivation it blossoms from July till the early frosts, and is esteemed as a border plant, the white flowering variety being preferred. The white mullein (*V. lychnitis*, Linn.) is an adventitious plant from Europe, and is to be found in some localities by the roadsides in Pennsylvania and in sandy fields in portions of the state of New York; its stem and branches are angled above, and clothed with a thin, powdery woolliness; its leaves are ovate, acute, not decurrent, green on their upper surface; its flowers are usually yellow, and are borne on a pyramidal panicle. This species is said to hybridize freely with the common mullein. There are several other species of *verbascum*, some of which are to be met with in gardens on account of their flowers. Persoon enumerates as many as 25 growing spontaneously in the temperate regions of the globe.

MÜLLER, Albert A., an American clergyman and poet, born in Charleston, S. C., about 1800. He was educated in that city, and published in 1825 a volume of poems which attracted much attention. One of his lyrics, after being generally copied by the newspapers, was finally adopted into the early American editions of Moore's sacred or Hebrew melodies, of which it formed the opening poem. He afterward went to the south-west, and all traces of him have been lost.

MÜLLER, Charles Louis, a French painter, born in Paris, Dec. 27, 1815. He studied with Cogniet and in the school of fine arts, and first exhibited in 1837; from 1850 to 1853 he was director of the manufactory of Gobelin tapestries. Among his chief works are the "Martyrdom of St. Bartholomew," the "Massacre of the Innocents," "Primavera," "Lady Macbeth," and the "Appeal of the Victims of the Reign of Terror;" the last, a large piece containing many portraits of historical persons, is his most powerful work. Another large historical picture by him, entitled *Vive l'empereur*, illustrating an episode in the battle before Paris, March 30, 1814, attracted much attention at the great exposition of 1855, and secured for the painter a medal of the first class. To distinguish him from the numerous painters of his name, he is called "Müller of Paris."

MÜLLER, Friedrich, a German painter and poet, born in Creuznach in 1750, died in Rome, April 23, 1825. He early devoted himself to painting and copperplate engraving, and in his 18th year published several collections of etchings, which attracted much attention from their originality. In 1776 he went to Rome, and studied the works of Michel Angelo; but his taste for the grotesque constantly increased and gave a fantastic character to his productions.

He stands higher as a poet than an engraver; he wrote idyls, romances, ballads, and dramas. He was usually called "Müller the Painter."

MÜLLER, Gerhard Friedrich, a German traveller and historian, born in Herford, Westphalia, in 1705, died in Moscow in Oct. 1783. He studied at Leipsic, was recommended by Prof. Mencke, one of his teachers, to the Russian government, and filled various offices in the academy founded by Peter the Great. In 1730 he was appointed professor of history, and the same year made a tour through Germany, Holland, and England. In 1733 he accompanied the expedition of Gmelin and De Lisle to Siberia, and returned in Feb. 1743, having spent nearly 10 years in studying the geography and antiquities of that country. In 1747 he was appointed historiographer of the Russian empire, in 1754 secretary of the academy of sciences, in 1766 keeper of the archives at Moscow, and afterward was made councillor of state and invested with the order of Vladimir. The work by which he is best known is the "Collections for the History of Russia" (9 vols., 1732–'64). He also wrote a description of Siberia, an account of travels and discoveries made by the Russians, an essay on the origin of the Cossacks, and many other works. He has been called the father of Russian history. Müller wrote French, Latin, Russian, and German with equal ease.

MÜLLER, Johann Gotthard von, a German engraver, born in Bernhausen, near Stuttgart, May 4, 1747, died in Stuttgart, March 14, 1830. He was educated as an engraver in Paris under Wille, and in 1802 was appointed professor of engraving in the academy of arts in Stuttgart. His prints do not exceed 33 in number. Among the best are the "Battle of Bunker Hill," after Trumbull's picture, Raphael's *Madonna della seggiola*, a St. Catharine with two angels after Leonardo da Vinci, and portraits of Louis XVI. and Schiller.—Johann Friedrich Wilhelm, son of the preceding, born in Stuttgart in 1782, died near Pirna, Saxony, May 3, 1816. After a careful art training under his father, he was sent to complete his studies in Paris, where in 1808 he executed the "St. John about to write the Revelation," after Domenichino, and "Adam and Eve under the Tree of Life," after Raphael. In 1809 he received a commission from Rittner, a print seller of Dresden, to engrave Raphael's famous *Madonna di San Sisto* in the Dresden gallery, which employed him during the remainder of his life. As the plate proceeded toward completion his interest in it seemed to increase; and finally, against the remonstrances of his friends, he gave himself up entirely to its execution, neglecting health and the ordinary duties of life. In 1814 he removed to Dresden and accepted a professorship of engraving in the academy there; but when the plate was completed the overtasked powers of the artist yielded suddenly with the cessation of his labors, and he expired a few weeks afterward, too late to see a finished proof of the engraving. It is one of the finest achievements of his art. Müller engraved only 18 plates.

MÜLLER, Johannes, a German physiologist, born in Coblentz, July 14, 1801, died in Berlin, April 28, 1858. He studied in the gymnasium of his native city until 1819, intending to become a priest in the Roman Catholic church. In that year he removed to the university of Bonn, where he conceived such an enthusiasm for the pursuit of science, that, following the example of Boerhaave and Cuvier, he abandoned his theological studies and determined to become a physician. At the age of 21 he took the degree of M.D., and went to Berlin to finish his studies and pass his state examination. Here, under the influence of Hegel and of Rudolphi, he was induced to reject the theory of Schelling, which "traced back all phenomena to the idea of the absolute," and with reference to which his previous studies had been conducted, and to recognize no system of physiology which is not founded upon a severe philosophical observation of nature. Returning to Bonn in 1824, he was appointed a *Privatdocent* or tutor in the university, in which capacity he lectured on general and comparative anatomy, physiology and embryology, general pathology and pathological anatomy, and at one time on the diseases of the eye and ear. His leisure hours were devoted to study and experiments, and he even attempted to a limited extent to practise medicine. Under such a multiplicity of pursuits his health gave way, but by the aid of the government he was enabled to restore it by travel and relaxation; and upon his return to Bonn in 1826 he was advanced to the rank of extraordinary professor of physiology and anatomy in the university, and in 1830 to that of professor. In 1833, a few months after the death of Rudolphi, although but 31 years of age, he was appointed to fill the chair of anatomy vacated by him at Berlin, and which was then considered the first in that department of science in Europe. In this position he remained until the close of his life, ranking among the first of living physiologists, and giving the direction to the study of medicine in Berlin and probably throughout Germany. To the effect of his publications may in a great measure be ascribed the recognition of medicine as one of the natural sciences. He generally passed his vacations in exploring the shores of the Mediterranean or other coasts of Europe, and became a great favorite with the people on the coast of Trieste, Nice, Messina, and other places, who called him the *illustrissimo professoro Tedesco*. He barely escaped with his life in 1853, while travelling over the St. Gotthard, and again in 1855 in a voyage from Bergen to Hamburg, when from a collision one of his pupils, Wilhelm Schmidt, was lost with many others. Müller was a heavily built man of middle size, of great muscular strength, and strongly marked features. His benevolence was equal to the excessive modesty of his disposition; and although abrupt in his manners, he was genial and affectionate. As early as 1825 his severe intellectual labors brought on a nervous fever, which also prostrated him in 1848; his anxiety in regard to the severe illness of his wife and one of his sons again impaired his health in 1857–'8; and he finally died from apoplexy. His remains were borne to the grave by 20 of his pupils, and the funeral was attended by the principal scientific, literary, and public men of the Prussian capital, including his friend Humboldt. His publications, numbering upward of 100, and of which a list of 87 is contained in the 3d volume of the *Bibliographia Zoologiæ et Geologiæ*, published in 1852 by the Ray society, embrace nearly every subject in comparative anatomy and physiology, not one of which has failed to receive new and valuable illustrations from his hand. Human physiology undoubtedly owes to his efforts its elevation from the position of a speculative to that of a positive science. His most important work is his "Manual of the Physiology of Man" (*Handbuch der Physiologie des Menschen*, 4th ed., 2 vols., Coblentz, 1851), containing his observations published in the journals and transactions of various European scientific bodies, and of which translations have appeared in France and England. Subsequent to 1834 he established and became a frequent contributor to the *Archiv für Anatomie, Physiologie und wissenschaftliche Medicin*, a periodical scientific publication containing an annual report of the progress of anatomical and physiological science. Among his other works are: *De Respiratione Fœtus* (Leipsic, 1823), a prize dissertation; *Zur vergleichenden Physiologie des Gesichtsinnes des Menschen und der Thiere* (Leipsic, 1826); *Grundriss der Vorlesungen über die Physiologie* (Bonn, 1827); *Grundriss der Vorlesungen über allgemeine Pathologie* (Bonn, 1829); *Ueber die organischen Nerven der erectilen männlichen Geschlechtsorgane*, &c. (Berlin, 1835). He also wrote many dissertations on subjects not altogether physiological, including the structure and classification of animals, the organs of the senses in men and animals, &c. Among these are: *Horæ Ichthyologicæ* (Berlin, 1849); *Ueber die phantastischen Gesichtserscheinungen* (Coblentz, 1826); *Der Tabak in geschichtlicher, botanischer, chemischer und medizinischer Hinsicht* (Berlin, 1832); *Ueber die fossilen Reste der Zeuglodonten*, &c. (Berlin, 1848); *Ueber Synapta digitata und über die Erzeugnung von Schnecken in Holothurien* (Berlin, 1852). His latest investigations were devoted to infusoria, and their results were published in the summer of 1860. He founded the *Zeitschrift für Physiologie und vergleichende anatomie*, which has been continued after his death by Dr. Peters, and was also a frequent contributor to a variety of other scientific publications. All the most prominent living physiologists of Germany have been formed in his school.

MÜLLER, Johannes von, a Swiss historian, born in Schaffhausen, Jan. 3, 1752, died in Cassel, May 29, 1809. He was the son of a clergyman, and was originally destined for the church. He attempted to write a history of Schaffhausen at the age of 9. In 1769 he went to Göttingen, where he studied under Heyne, Walch, and Schlözer. On his return in 1772 he was appointed professor of Greek in the Schaffhausen gymnasium, and in the same year published a Latin work entitled *Bellum Cimbricum*. At this time he formed a close intimacy with Bonstetten, which gave rise to the "Letters of a Young Scholar to his Friend" (1802). Through Bonstetten's recommendation he became, in Feb. 1774, tutor in the family of Counsellor Tronchin of Geneva, and subsequently lived with the naturalist Bonnet. In 1778 he delivered a course of lectures on universal history, which were afterward published under the title of "Twenty-Four Books of Universal History," and translated into English. In the summer of 1779 he completed the first volume of his "History of Switzerland," which appeared at Bern in 1780 after several conflicts with the censors of the press. Soon afterward he went to Berlin, where he published his "Historic Essays." In May, 1781, he was appointed by the landgrave of Hesse to the chair of history at Cassel, and here produced his treatise "On the Influence of the Ancients upon the Moderns," and his "History of the Establishment of the Temporal Dominion of the Pope in the latter half of the 8th Century." He also published a work maintaining that the sacerdotal order was the defender of the liberties of the people against the arbitrary power of the temporal rulers, and this procured him many friends in Rome and in Catholic Germany. In 1783 he returned to Geneva; and in 1786, having been appointed court councillor and librarian at Mentz, he completed there the second volume of his "History of Switzerland." He was sent in 1787 as an envoy to Rome, and in 1791 was created a baron of the empire. When Mentz fell into the hands of the French in 1792 he went to Vienna, and was appointed a member of the privy chancery of the court and state. Here he published several political treatises, "Precipitation and the Peace of the Empire," "The Dangers of the Time," "The Safest Method of Obtaining Peace," and others urging the necessity of a close union and harmony among the German states. In 1800, having been appointed first keeper to the imperial library, he devoted himself with still more ardor to his great historical work. In 1804 he left Vienna and went to Berlin, where he wrote essays on Frederic the Great, on the ruin of the liberty of the ancients, and on ancient chronology. In 1806 he began a history of Frederic the Great, but was interrupted by the political disturbances which took place in consequence of the battle of Jena. Having been treated with marked attention by Napoleon, he was won over to his side, and expressed his admiration in so decided a manner in an oration on the glory of Frederic, delivered Jan. 29, 1807, that he became an object of suspicion in Prussia.

He therefore accepted a situation at the university of Tübingen, but on his way thither was appointed by Napoleon secretary of state to the new kingdom of Westphalia. The following year he exchanged this office for that of director of public instruction, and died not long after, having just finished his 5th volume of Swiss history. His complete works were published at Tübingen in 27 vols. (1810–'19). His great work, *Geschichte der Schweizerischen Eidgenossenschaft*, was brought down only to 1489. It is distinguished for its vast research, and for the attractiveness of its style, and places its author in the front rank of historians. Müller's letters to his friend Bonstetten contain much valuable information in regard to his times, and furnish materials for forming a correct estimate of his own character. His death was hastened by the melancholy into which his load of debt, the failure of his plans, and the condition of the times had plunged him.

MÜLLER, Karl Otfried, a German philologist and archæologist, born in Brieg, Silesia, Aug. 28, 1797, died in Athens, Aug. 1, 1840. He was educated at the gymnasium of Brieg, the university of Breslau (at the latter institution devoting himself principally to the study of philology), and that of Berlin, where he was graduated in 1817, and published in the same year his *Æginsticorum Liber*. Upon leaving Berlin, he was appointed instructor in ancient languages in the Magdalenum of Breslau, where he employed much time in mythological studies and in the analysis of the different mythical cycles, the results of which were subsequently published in his important work on the history of Hellenic races and cities, *Geschichte Hellenischer Stämme und Städte*, of which the 1st volume, entitled *Orchomenos und die Minyer*, appeared at Breslau in 1820. In 1819 he received an invitation to fill a professorship in Göttingen, the duties of which included a series of lectures on archæology and ancient art; and in order to prepare himself he visited France, England, and various parts of Germany. His work on the Dorians, *Die Dorier* (2 vols. 8vo., Breslau, 1824), forming the 2d and 3d volumes of his *Geschichte Hellenischer Stämme und Städte*, was intended to show the connection of manners, religion, politics, and history in one of the Greek races. An English translation by H. Tuffnell and Sir George Cornewall Lewis was published at Oxford in 1830, with additions and corrections furnished by the author, and a new German edition of the whole work has since appeared (3 vols., Breslau, 1844). In 1840 a new English edition of the "Dorians" was also published. A work on Attica, intended to form a continuation of this series, was projected by the author, but never undertaken. Among his remaining works, the most important are the *Prolegomena zu einer Wissenschaftlichen Mythologie* (Göttingen, 1825), of which an English translation by J. Leitch appeared in 1844 (8vo., London); a work on the early history of Macedonia, entitled *Ueber die Wohnsitze, die Abstammung und die ältere Geschichte des Makedonischen Volkes* (Berlin, 1825); *Die Etrusker* (Breslau, 1828); and *Handbuch der Archäologie der Kunst* (4th ed., Bonn, translated by J. Leitch, London, 1850), the last being the first general treatise on the history of ancient art which appeared in Germany. He also undertook for the society for the diffusion of useful knowledge a history of Greek literature, of which only the 1st volume and a portion of the 2d were completed at his death. The work was published both in England and Germany, and has lately been completed by Prof. Donaldson (3 vols., London, 1856). He published also a number of special archæological treatises and articles for the periodicals, and edited Festus, Varro's *De Lingua Latina*, and the *Eumenides* of Æschylus. In 1840 he undertook a tour through southern Italy and Greece, and while engaged at Delphi in superintending some excavations, was seized with a fever, the result of heat and fatigue, and died soon after being removed to Athens.—Julius, a German theologian, brother of the preceding, born in Brieg, April 10, 1801. He studied law at Breslau and Göttingen, and theology at Berlin, and in 1825 became pastor of Protestant congregations in Schönbrunn and Rosen in Prussia. In 1834 he was appointed assistant professor of theology in the university of Göttingen, in 1835 professor of dogmatic and moral philosophy in Marburg, and in 1839 titulary professor of theology to the faculty of Halle. In 1850, in conjunction with Neander and Nitzsch, he established the "German Journal of Science and Christian Life," to which he furnished a series of articles on moral philosophy and ecclesiastical discipline. Among his publications are: *Das Christliche Leben, seine Kämpfe und seine Vollendung* (3d ed., Breslau, 1847); *Die Christliche Lehre von der Sünde* (3d ed., 1849; English translation, 2 vols. 8vo., Edinburgh, 1856); *Die erste Generalsynode der evangelischen Landeskirche* (Berlin, 1847), &c.

MÜLLER, Otto, a German novelist, born in Schotten, June 1, 1818. After having completed his education at Darmstadt, he was employed for some time in the libraries of the grand duke and prince of Hesse-Darmstadt, edited for about 8 years, until 1843, the *Frankfurter Conversationsblatt*, a literary journal, and in 1848 joined the staff of the *Manheimer Journal*. After the death of his wife, Gustava Fritze, who had fallen in love with him on account of her admiration for his work on the poet Bürger, he removed to her native city Bremen (1852), but in 1854 returned to Frankfort-on-the-Main, where he was engaged in the preparation of Meidinger's collection of novels (*Deutsche Bibliothek*), and in the foundation of a literary weekly journal (*Frankfurter Museum*). In 1856 he married a sister of his late wife, and has since taken up his residence in Stuttgart. His *Bürger, ein Deutsches Dichter-Leben* (Frankfort, 1845) had been preceded by a series of novels, and was followed by some political novels, as *Georg Volker, ein Roman aus dem Jahre* 1848 (3 vols., Bremen, 1854), and by several other works, of which his *Charlotte Ackermann* (Frankfort, 1854) was most admired, and was translated into French by Porchat under the title of *Charlotte Ackermann, souvenirs du théâtre de Hambourg au XVIIIᵉ siècle* (Paris, 1854). Among his recent works are *Der Stadtschultheiss von Frankfurt* (Stuttgart, 1856), and *Andrea del Castagno* (Frankfort, 1857); and he is now (1860) engaged upon a novel of commercial life.

MÜLLER, Otto Frederik, a Danish naturalist, born in Copenhagen, March 1, 1730, died Dec. 26, 1784. He was of humble extraction, and was educated for the church. At 23 years of age, by his intelligence and uprightness, he recommended himself to the countess de Schulin, who engaged him as tutor to her son. His leisure hours were now devoted to the study of natural history; and upon his settling in Copenhagen in 1767, after a number of years of travel with his pupil, he was enabled to rank with the most eminent botanists and zoologists of the time. He soon after married a woman of fortune, and devoted the remainder of his life to scientific pursuits. His first important work, *Fauna Insectorum Friedrichsdaliana* (Leipsic, 1764), and *Flora Friedrichsdaliana* (Strasbourg, 1767), describing the insects and plants of the region of country in which he resided, recommended him to Frederic V. of Denmark, a munificent patron of science, by whom he was employed to continue the *Flora* of Denmark, undertaken in 1761 at the royal command by George Christian Oeder, who finished 3 volumes. To these Müller added 2 others, the last appearing in 1783. The study of zoology, and particularly of the minute animals, meanwhile began to occupy his attention almost exclusively, and in 1771 he produced a work in German on "Certain Worms inhabiting Fresh and Salt Water" (Copenhagen), which described many new species of those annulose animals called by Linnæus *aphrodites* and *nereidæ*, and gave much additional information respecting their habits. His *Vermium Terrestrium et Fluviatilium seu Animalium Infusoriorum, Helminthecorum, et Testaceorum non Marinorum, succincta Historia* (2 vols. 4to., Copenhagen and Leipsic, 1773–'4) is devoted to the infusoria, to observations on intestinal worms, and to the testaceous mollusca. The first of these he arranged for the first time into genera and species. His *Hydrachnæ in Aquis Daniæ Palustribus detectæ et descriptæ* (Leipsic, 1781), and *Entomostraca* (crustaceans described by Linnæus as *monoculi*, Leipsic, 1785), give the results of interesting investigations in the same field of research, and describe many species of minute animals previously unknown. To these was added an elaborate illustrated work on the infusoria, published in 1786, after his death. These 3 works, written in elegant Latin, are models of literary composition, and, according to Cuvier, have given the author "a place in the first rank of those naturalists who have enriched science with original observations." His *Zoologica Danica*, which was intended to correspond, in the animal kingdom, with the *Flora Danica* in the vegetable, was commenced in 1779, but left incomplete, only 2 parts, each containing 40 plates, having been finished by him. These, however, are distinguished by great accuracy in the descriptions and figures of the animals described, and the work is of high value to the naturalist even at the present day. He wrote also a general catalogue of the animals of Denmark, entitled *Zoologicæ Danicæ Prodromus* (Copenhagen, 1777), and a variety of monographs on scientific subjects. He was a councillor of state and the recipient of other honorary appointments.

MÜLLER, Peder Erasmus, a Danish theologian and antiquary, born in Copenhagen, May 29, 1776, died Sept. 16, 1834. He was educated at the university of Copenhagen, where, after visiting France and England, he was appointed professor of theology in 1801. He was made bishop in 1822, and in 1830 appointed to the diocese of Seeland. Among his theological works are the "Christian Moral System" (1808), "Grounds for Belief in the Divinity of Christianity" (1810), and "Creeds of the Christian Church" (1817). His literary reputation, however, rests chiefly on his antiquarian writings, among which are essays "On the Importance of the Icelandic Language" (1818), and "On the Rise and Decline of Icelandic Historiography" (1818); a "Critical Examination of the traditional History of Denmark and Norway" (1823); and "Critical Examination of the last 7 Books of the History of Saxo Grammaticus." His greatest work is his "Library of the Sagas" (1816–'18), in which he gives an account of all the Icelandic sagas or tales, their time of composition, their character, and their literary history. From 1805 to 1832 Müller was editor of the "Danish Literary Gazette," which, under the names of the *Nye Tidende af Laerde Sager*, *Laerde Efterretninger*, and *Dansk Litteratur Tidende*, lasted from 1724 to 1836. He also published a work on "Danish Synonymes" (1830), and began a critical edition of the Latin history of Denmark by Saxo Grammaticus, finished after his death by Velschon.

MÜLLER, Wilhelm, a German author, born in Dessau, Oct. 7, 1794, died there, Oct. 1, 1827. In 1813 he joined the Prussian army as a volunteer, and in 1814 after the peace went to Berlin, and applied himself especially to the ancient German language and literature. From 1817 to 1819 he travelled in southern Germany and Italy, and on returning was appointed classical instructor in the newly organized school of Dessau for the training of teachers. His first work, *Blumenlese aus den Minnesängern* (1816), contained the fruits of his researches into early German poetry. In 1818 he published a translation of Marlowe's "Faustus," followed by

"Rome, Romans, and Roman Women" (1820), and "Poems from the Posthumous Papers of a Travelling Musician" (1822–'4). In 1821 the first of his "Songs of the Greeks" appeared, and in 1827 his "Lyrical Walks." He edited a "Library of the German Poets of the 17th Century," and wrote much for literary annuals. —FRIEDRICH MAX, a German orientalist, son of the preceding, born in Dessau, Dec. 6, 1823. He was educated at the university of Leipsic, where he devoted himself almost exclusively to the study of Sanscrit, and in 1845 repaired to Paris to procure materials for an edition of the *Rigveda* with the commentary of Sayanacarya. The work was published in England, whither he had gone for further materials, in 1849–'54 (3 vols.), at the expense of the East India company. In 1850 he was appointed deputy Taylorian professor of literary history and comparative grammar in the university of Oxford, and in 1851 an honorary member of the university. Since 1854 he has held the professorship of modern European languages in the same institution. Among his other works are translations of the *Hitopadesa* (Leipsic, 1844), and of Kalidasa's *Megha-Duta* (Königsberg, 1847); a treatise "On the Comparative Philology of the Indo-European Languages in its bearing on the Early Civilization of Mankind," which in 1849 gained the Volney prize; "The Languages of the Seat of War in the East" (London, 1854); "Buddhism and Buddhist Pilgrims" (1857); "History of Sanscrit Literature" (1859); and many important contributions to various English periodicals.

MULLER, WILLIAM JOHN, an English painter, born in Bristol in 1812, died there, Sept. 8, 1845. He was of German extraction, and his father was curator of the Bristol museum. He studied with J. B. Pyne, the landscape painter, and in 1833–'4 made an extensive tour through Germany, Switzerland, and Italy, bringing back numerous sketches of great excellence. His first pictures exhibited in the royal academy attracted little notice. In 1838–'9 he undertook a tour through Greece and Egypt, among the results of which were two powerful landscapes, "Athens from the Road to Marathon," and "Memnon, or Ruins at Gornou in Egypt at Sunset," both of which were badly hung at the academy exhibition, and were disposed of for less than a tenth of their present value. In 1843 he accompanied Sir Charles Fellows on his expedition in quest of the Xanthian marbles, and returned in the following year with numerous sketches. Five pictures of Asiatic scenery in the exhibition of 1845 were treated with not less neglect than his previous contributions, and soon after he was seized with severe illness, the result of mingled fatigue, anxiety, and mortification at these repeated slights, from which he never recovered. His pictures subsequently commanded high prices, and a collection of 300 sketches was sold soon after his death for £4,360. He was an occasional contributor to the "Art Journal," and in 1841 produced a beautiful work entitled "Picturesque Sketches of the Age of Francis I."

MULLET, a name given to two families of acanthopterygian fishes, the *mugilidæ* and the *mullidæ*, though the latter, to avoid confusion, are better styled surmullets. In the *mugilidæ*, the body is more or less cylindrical; head and body covered with large, easily detached scales, in reality ctenoid, but so slightly denticulated as to appear cycloid; gill covers thin and smooth; head flattened, and the eyes large and far apart; the mouth small, and the teeth, when present, exceedingly fine; a kind of crest in the lower jaw received into a groove in the upper; dorsals 2, small and distinct, the 1st with usually 4 spinous rays, the 2d with flexible rays; ventrals behind pectorals; the pharyngeals are very large, the stomach rather fleshy, and the intestine with a few pyloric cæca; the swimming bladder is large. More than 50 species of the principal genus *mugil* (Linn.) have been described, from Europe, America, Africa, and the East Indies, inhabiting salt water, in preference about the mouths of rivers which they can ascend or descend with the tide. The gray mullet of western European waters (*M. capito*, Cuv.) attains a length of from 1 to 2 feet; the color above is dusky gray tinged with blue, the sides and belly silvery with longitudinal parallel dusky lines; a dark spot at the base of the pectoral fin. They are highly esteemed as food, and are caught in nets, from which they attempt to escape by jumping over the edge. This species is common on the English coasts, never far from land, and ventures many miles inland with the tide; it is one of the species which thrive even in fresh water; the food consists of soft or decaying animal or vegetable substances; the spawning time is in midsummer. The thick-lipped mullet (*M. chelo*, Cuv.), inhabiting the same waters, is more gregarious than the last; the lips are large and fleshy, with ciliated edges, through which the teeth penetrate like so many hairs. The gray mullet of the Mediterranean (*M. cephalus*, Cuv.) may be known by the two adipose veils which half cover the eyes, by the long ridged scale at the base of the pectoral fins, and by the entire concealment of the maxillary bone when the mouth is shut; it attains a weight of 10 or 12 lbs., and is taken in nets in great quantities at the mouths of the rivers; the flesh is tender, delicate, and fine-flavored, and has been esteemed from ancient times; it is eaten fresh, salted, and smoked. Of the American species may be mentioned the striped mullet (*M. lineatus*, Mitch.), 6 or 8 inches long, purplish brown above, lighter on the sides with 10 or 12 dark brown longitudinal stripes, pupils black and irides yellowish white, and abdomen pearl gray—an excellent fish, ranging from New York southward, and appearing in the markets in early autumn; the white mullet (*M. albula*, Linn.), of a general whitish color, about 9 inches long—a plump, firm fish, appearing in July and August, and prized by epicures; and the rock mullet (*M. petrosus*, Cuv.), like the last found from New York to the gulf of Mexico. The African and Asiatic species are generally greenish brown above, with golden and silvery reflections, and white below.—The other family of mullets, more properly called surmullets (*mullidæ*), have some affinities with the perch family in the position of the fins, but differ from them in the unarmed opercula and the slightly ctenoid character of the scales; the branchiostegal rays are 4; the scales are large and easily detached; the dorsals are 2, widely separated, and all the fins are moderate; body oblong, little compressed; profile nearly vertical; mouth small, and teeth feeble; gill opening wide; eyes large and at top of the head; in most species the lower jaw has 2 barbels at the symphysis. In the genus *mullus* (Linn.) there are no teeth in the upper jaw, but pavement-like ones on the vomer and lower jaw, and no air bladder. The red mullet (*M. surmuletus*, Linn.) is bright red above and on the sides, with 3 golden yellow longitudinal lines behind the pectorals, and rosy white below; it attains a length of 12 to 15 inches. It is found from the English coast southward, being more common to the south, and very abundant in the Mediterranean, where it feeds upon crustaceans and mollusks; it is less esteemed as food than the next species. The bearded mullet (*M. barbatus*, Linn.) has a more vertical profile and a deeper and more uniform red color; comparatively rare north of the English channel, it is most abundant in the Mediterranean; this is the *rouget* of the French. Of about the same size as the last, it is more highly esteemed as food, for its white, firm, well flavored, and easily digested flesh; the old Roman epicures paid immense prices for this fish, sometimes as much as $200 or $300 for a single specimen; they kept them alive in *vivaria*, and exhibited their brilliant colors, rendered more beautiful in the agonies of death, to their guests, that their eyes might be delighted by what would soon gratify their palates.—In America fish of the allied genus *upeneus* (Cuv.), with teeth in both jaws, are called mullets; most of these have a large air bladder. The *U. maculatus* (Bloch), with others, 6 or 8 inches long, is found in the gulf of Mexico, the West Indies, and South America; the color is red, with a few blackish spots; the flesh is not much prized.

MÜLLNER, Amadeus Gottfried Adolf, a German dramatist, born in Langendorf, near Weissenfels, Oct. 18, 1774, died in the latter place, June 11, 1829. He practised for some time as a lawyer, and wrote on jurisprudence. Subsequently he devoted himself to literature, and is best known by his dramas *Der neunundzwanzigste Februar* and *Die Schuld*, which were among the most popular productions of the fatalistic dramatic school (*Schicksalstrāgodie*) which had been introduced on the German stage by Werner. Müllner's miscellaneous writings were published in 2 vols. (Stuttgart, 1824–'6), and his dramatic works in 7 vols. (Brunswick, 1828).

MULOCK, Dinah Maria, an English authoress, born in Stoke-upon-Trent, Staffordshire, in 1826. In 1849 appeared her first novel, "The Ogilvies," a work written with great earnestness, and containing many subtle delineations of character and life-like scenes. It was followed by "Olive," which proved no less popular, the "Head of the Family," a fairy tale entitled "Alice Learmont," "Agatha's Husband," "Avillion and other Tales," and a variety of minor tales and books for young people. In 1856 appeared "John Halifax, Gentleman," her best production; and she has since written "A Life for a Life," "A Woman's Thoughts about Woman," and "Studies from Life." An edition of her fugitive poems was published in 1860. Her books have been regularly reprinted in the United States, where they are widely read and appreciated.

MULREADY, William, a British artist, born in Ennis, Ireland, in 1786. He was admitted a student of the royal academy at 14 years of age. His first productions, both as regards size and subject, were on a somewhat grand scale; but he soon restricted himself to pictures of much humbler pretensions, and his "Rattle" (1808), "Roadside Inn" (1811), and "Punch" (1813) showed careful study from nature and a good idea of color. His "Idle Boys" (1815) procured his election as an associate of the academy, and within a few months he was admitted to full membership. Since the death of James Ward he has been the patriarch of that institution. His subsequent works, including "The Fight Interrupted" (1816), "Lending a Bite" (1819), "The Wolf and the Lamb" (1820), "The Convalescent" (1822), "The Origin of a Painter" (1826), "The Last In" (1835), "First Love" (1840), "The Ford" (1842), &c., exhibited a constantly increasing refinement in artistic excellence; and for luminous color, delicacy of finish and expression, accurate drawing, and the graphic manner in which they tell their story, they are among the best productions of the modern English school. Some of his latest works illustrate scenes from the "Vicar of Wakefield," for which in 1840 he prepared a series of 20 designs; and in 1849 he produced a successful picture of a kind the opposite to that in which he had gained his reputation, entitled "Women Bathing." In 1848 an exhibition of his works was formed at the society of arts. Choice specimens of his style are contained in the royal collection, and in the Vernon and Sheepshanks portions of the national gallery.

MULSO, Hester. See Chapone.

MUMMY (Arab. *mumia*), a dead body preserved from putrefaction by embalming or other means. The custom of thus preserving the bodies of the dead has prevailed in several countries. Humboldt found mummies in Mexico, and in Peru the bodies of the incas were rudely embalmed and dried. The Guanches, or aboriginal inhabitants of the Canaries, removed the entrails of the dead, dried the corpse in the air, covered it with aromatic varnish, and, wrapping it in goat skins, kept it in a wooden case. These mummies, of which thousands have been found, are light in weight, of a yellow color, and have a strong aromatic odor. But it was by the ancient Egyptians that the art and practice of embalming the dead were carried to the greatest extent and highest perfection. All the dead of Egypt were embalmed in some manner, partly, it is supposed, from religious motives, and partly for sanitary reasons. The notion formerly prevalent, that the Egyptians preserved the body in order to keep it in a fit state to receive the soul when it should have passed through its allotted transmigrations, is inconsistent with the facts that tombs were sometimes sold to later occupants, and that animals of all kinds were also embalmed. (See EMBALMING.) The origin of embalming among the Egyptians has been attributed to their first merely burying in the sand, impregnated with natron and other salts, which dried and preserved the body, which natural process they afterward imitated, drugs and bitumen being later improvements. Bitumen does not appear to have been generally used before the time of the 18th dynasty. From inspection of the Egyptian mummies it is evident that several modes of preparation were in use, some of which differ in many essential points. The intestines taken from the body were cleaned and embalmed in spices, and deposited in 4 vases, one of which contained the stomach and large intestines, the 2d the small intestines, the 3d the lungs and heart, and the 4th the gall bladder and the liver. Each of these vases bore on the cover the name and the image of a deity who was supposed to have special charge of the parts contained in it. These vases were sometimes made of costly alabaster, but generally of common limestone. They were placed in the tomb with the corpse; and so careful were the Egyptians to show respect to every thing that belonged to the human body, that even the sawdust of the floor on which the embalmers did their work was gathered into linen bags, which also were placed in the tomb. The mummies preserved by balsamic and astringent substances are either filled with a mixture of resin and aromatics, or with asphaltum and pure bitumen. When filled with resinous matter they are of an olive color, and the skin dry, flexible, and as if tanned. The features are preserved, and appear as during life; the teeth, hair, and eyebrows are well preserved. Mummies of this kind are light, dry, and easily broken. Some of them are gilt all over, others only on the head and feet. The mummies filled with bitumen are black; the skin hard and shining, and as if varnished; the features perfect; and the whole corpse dry, heavy, and difficult to break. Of the mummies preserved with natron and filled with asphaltum and resinous substances, the skin is hard and elastic, resembling parchment, and does not adhere to the bones; the countenance is little altered, but the hair falls off on being touched. All these kinds of mummies were enveloped each in linen bandages, sometimes 1,000 yards in length; the body was then enclosed in a cartonage or pasteboard case fitting closely, which was richly painted and gilded and adorned with beads and bugles; the cartonage was covered with 3 or 4 cases ornamented in like manner; and the whole was then enclosed in a sarcophagus of wood or stone. The bodies of the poor, which were salted and boiled in bituminous matter, are the most numerous of all. They are black, dry, heavy, and very hard to break; neither the hair nor eyebrows are preserved, and there is no gilding upon them. It is singular that few mummies of children have been discovered in Egypt, though even those just born were embalmed. Embalming was practised by the Hebrews to some extent. Joseph commanded the physicians to embalm his father, and in the time of Christ it was "the manner of the Jews" to bury the body "wound in linen cloths with spices." The practice continued in Egypt till the 6th century, and was common among the Greeks there, and even among the early Christians. It seems to have fallen gradually into disuse. Mummies were formerly much used in medicine on account of the balsam they contain; but this employment of them has ceased.

MUMPS (*cynanche paritoidea parotitis*), a specific inflammation of the parotid and submaxillary glands. This curious affection, called by the Scotch branks, and by the French *oreillons* or *ourles*, has been known from the time of Hippocrates. It commences with a feeling of pain and tension beneath the ear, swelling takes place, and motion of the jaw is painful. The swelling soon involves the parotid and submaxillary glands; it is somewhat pasty to the feel, and is unattended with redness of the skin. Sometimes one side only is affected, sometimes both at once, more commonly one after the other. The disease is attended with slight fever, but the pain is by no means proportioned to the swelling and the deformity. The duration of the complaint is from 8 to 10 days, it taking 4 days to attain its height, and 4 days being occupied by its decline. Occasionally in males the testes, and in females the breasts, become swollen and hard as the swelling of the salivary glands subsides; and very rarely, in the subsidence of the swelling either of the parotid or of the testes, inflammation of the brain or its membranes has occurred. The disease is often epidemic, and is generally believed to be contagious. It ordinarily requires little treatment, the administration of a laxative and warm and emollient applications to the affected part being all that is necessary. When the brain is attacked, it must be treated irrespective of the original affection.

MÜNCH, ERNST HERRMANN JOSEPH VON, a German historian, born in Rheinfelden, Oct. 25, 1798, died there, June 9, 1841. He was for some time professor at Freiburg, and for many years he filled the chair of ecclesiastical history and law at Liége. From 1831 till his death he officiated as director of the private library of the king of Würtemberg. Among his principal works are: *Allgemeine Geschichte der neuesten Zeit* (6 vols., Leipsic, 1833–'5), and his autobiography, *Erinnerungen und Studien aus den ersten 37 Jahren eines Deutschen Gelehrten* (3 vols., Carlsruhe, 1836–'8).

MÜNCH-BELLINGHAUSEN, Eligius Franz Joseph von, baron, a German dramatist, known in literature by his pseudonyme of Friedrich Halm, born in Cracow, April 2, 1806. Various members of his family held high positions in the Austrian service. He early displayed much taste for dramatic literature. His *Griseldis* (Vienna, 1834) was received with much favor, and was succeeded by a series of other dramas, the most celebrated of which are his drama *Der Sohn der Wildniss* (1842; translated into English by Charles E. Anthon, New York, 1848, under the title of "The Son of the Wilderness," but frequently performed on the American stage under that of "Ingomar the Barbarian"), and *Der Fechter von Ravenna* (1854). Among his most recent works is a drama entitled *Iphigenie in Delphis*, in imitation of Goethe's *Iphigenie*, and a play written for the Schiller festival in 1859 entitled *Vor hundert Jahren*. He published a volume of poetry in 1850, and in 1852 a valuable work on ancient Spanish plays (Vienna, 1852), his position as director of the imperial library, which he has occupied since 1845, facilitating such bibliographical labors.

MÜNCHHAUSEN, Gerlach Adolf von, baron, a German statesman, born in Berlin, Oct. 14, 1688, died Nov. 26, 1770. He was descended from an ancient noble family. After having prosecuted his studies at the universities of Jena, Halle, and Utrecht, he held various judicial and diplomatic offices under the Hanoverian government. Soon after the foundation of the university of Göttingen, he was appointed its curator, and acted in this capacity for upward of 30 years. He established the library and other institutions connected with the university, which was chiefly indebted to him for its rapid development. He was appointed prime minister of Hanover in 1765.

MÜNCHHAUSEN, Hieronymus Karl Friedrich von, baron, a German soldier, born in 1720 on his paternal estate of Bodenwerder, Hanover, died there in 1797. He was descended from the so called white branch of the Münchhausen family, served in his youth as a cavalry officer in the Russian army, and passed his latter days in Hanover. He delighted in telling the most wonderful stories of his adventures in the campaign against the Turks in 1737–'9, which gained for him in Germany the reputation of one of the greatest living liars. The stories themselves were soon repeated from one end of the country to the other, and created then, as now, universal merriment. They are said to have been first compiled by Rudolf Erich Raspe, a man of letters, who, being compelled to flee from Cassel to England on account of a charge of embezzlement, was engaged in London in literary pursuits, and is generally believed to have published anonymously an English edition of the stories under the title of "Baron Munchausen's Narrative of his Marvellous Travels and Campaigns in Russia" (London, 1785). A 2d edition, considerably enlarged and ornamented with views from the baron's drawings, was published at Oxford in 1786, under the title of "The Singular Travels, Campaigns, Voyages, and Sporting Adventures of Baron Munnikhousen, commonly pronounced Munchausen; as he relates them over a bottle when surrounded by his friends." A 3d edition, published by Kearsley in London the same year, bore the additional title of "Gulliver Revived," and was soon followed by others. The work was first issued in a German form in 1786, under the auspices of the poet Bürger, who remarks in a subsequent issue, in which he used the 5th English edition: "It is in truth somewhat singular to see the following tales, which were produced upon German soil and have wandered in various forms and dresses through their own country, at last collected and made known through the press abroad. Perhaps Germany in this instance, as in others, has not done justice to her own deserts. Perhaps the English know better what humor is, how valuable to the world and how honorable to its possessor. However this may be, we find ourselves, in spite of all the speculations of our own vigilant writers, obliged to import a native production from a foreign country." The last German edition of this famous work, entitled *Des Freiherrn von Münchhausen wunderbare Reisen und Abenteuer* (Göttingen and Berlin, 1849), contains an able introduction by Adolf Ellisen upon the life and writings of the author, the sources and originals of the Münchhausens, and the literature of fictitious travels in general. The tradition of the baron's story-telling is supported in the work by the evidence of a clergyman who lived much in his society, and who informed Mr. Ellisen's father, a medical man of Göttingen, who himself visited the baron in his latter days, that the old officer used to relate his most surprising adventures "in a cavalier manner, with a military emphasis, but without any passion and with the easy humor of a man of the world, as things which required no explanation or proof." But although the compiler of the work may have been in a great measure indebted to the narratives of the baron, a large proportion of the hunting stories are derived from Henry Bebel's *Facetiæ* (Strasbourg, 1508), while other incidents are borrowed from Castiglione's *Cortegiano* and Bildermann's *Utopia*, which are included in Lange's *Deliciæ Academicæ* (Heilbronn, 1765). A new and free German version of the English edition appeared in Leipsic in 1846, under the title of *Münchhausen's Lügenabenteuer*. The work still maintains its popularity in Germany as well as in England and the United States. Imitations of Münchhausen's stories are called in Germany *Münchhausiaden*. The success of the work has called much attention to the elements of humor and poetry in the character of the class of people who listened most to Münchhausen's stories, and given rise to Immermann's celebrated *Münchhausen* (4 vols., 2 ed., Düsseldorf, 1841), and to Adolf Schrödter's picture representing the baron surrounded by his listeners.

MUNDAY, Anthony, an English dramatist, born in 1553, died in London, Aug. 10, 1633. After having been an apprentice and actor, he went to Italy, and became a student in the English Catholic college at Rome. On returning to England, he abjured his religion, appeared as a witness against some Catholic conspirators, and subsequently published a report of their execution, having held a disputation with one of them at the foot of the gallows. He next became a playwright, and especially devoted himself to the contrivance of city pageants. Mr. Collier enumerates 14 plays which were written either wholly or in part by Munday.

MUNDT, Theodor, a German author, born in Potsdam, Sept. 19, 1808. He was educated in Berlin, spent some time in literary pursuits in Leipsic, and became prominent among the young Germany school of writers and politicians, of whom Heine and Börne were the principal exponents. His liberalism giving umbrage to the government, he travelled in various parts of Europe, and was permitted to teach at the university of Berlin after his return in 1839. In 1848 he was appointed professor of general literature and history at Breslau, and since 1850 he has officiated as director of the library of the Berlin university. Among his earliest writings was *Madonna, oder Unterhaltungen mit einer Heiligen* (Leipsic, 1835), which attracted much attention. Its morbid though poetical views of life are said to have prompted Charlotte Stieglitz to commit suicide from devotion to her husband, whom she hoped to divert from his varied troubles by the greater sorrow caused by her death. Mundt edited her writings under the title *Charlotte Stieglitz, ein Denkmal* (Berlin, 1835). Among his subsequent works are a series of novels, the best of which are *Thomas Münzer* (Altona, 1841), and *Carmola, oder die Wiedertaufe* (Hanover, 1844); *Mendoza, oder der Vater der Schelme* (Berlin, 1847); and *Die Matadore* (1850). He has also published *Spaziergänge und Weltgänge* (Altona, 1838–'40), *Völkerschau auf Reisen* (Stuttgart, 1840), and other sketches of travels, and a brilliant delineation of the character of Knebel in the edition of that author's posthumous works which he prepared in concert with Varnhagen von Ense. Among his more solid productions are *Kunst der Deutschen Prosa; Allgemeine Literatur-Geschichte*, in continuation of that of Schlegel; *Dramaturgie; Geschichte der Literatur der Gegenwart*, &c. His *Geschichte der Gesellschaft* (1844) was followed by a *Geschichte der Deutschen Stände* (1853); and he published in 1851 an interesting work on Macchiavelli. He began in 1844 the publication of an edition of Luther's political works. His *Rom und Neapel* was published in 1860.—Klara, wife of the preceding, known under her pseudonyme of Luise Mühlbach, born Jan. 2, 1814, was married to Mundt in 1839. Her novels indicate the most unconventional views of life, ultra-liberal political opinions, and an unbridled imagination. Among them are *Gisela, Eva*, and *Die Tochter einer Kaiserinn*, the last an extravagant narrative of Russian despotism. Among her most recent works are *Friedrich der Grosse und sein Hof* (3 vols., Berlin, 1853), and *Berlin und Sanssouci* (4 vols., 1853).

MUNI or Danger River, a stream of western Africa, which rises in the Sierra del Crystal mountains and flows into Corisco bay in the gulf of Guinea, in lat. 1° 2′ N., long. 9° 33′ E. It is formed by 3 main branches, viz.: the Ntongo, 40 m. long; the Ntambounay, 70 m. long; and the Noya, whose length is about 80 m. These head streams have their sources in the Sierra del Crystal, and like the Muni itself follow a general westerly or south-westerly course. Their banks are thinly peopled by a variety of tribes.

MUNICH (Germ. *München*), a city of south Germany, capital of Bavaria, on the left bank of the Isar, in the midst of a plain upward of 1,600 feet above the level of the sea, 38 m. by railway from Augsburg, 325 m. from Frankfort-on-the-Main, and 220 m. W. from Vienna; pop. in 1856, 137,095, including about 16,000 Protestants and 1,000 Jews, the rest being Roman Catholics. Since the beginning of the present century Munich has been so much enlarged and embellished, chiefly through the exertions of King Louis, that it is now one of the most interesting places in central Europe, vying in its attractions with the most renowned capitals of Germany, and surpassing them all in the splendor of some of its public buildings and works of art and in the vivacity of its population. The city consists of the old town, the numerous streets of which branch from the great market place, of 5 suburbs (the old St. Anna and Pfarr, and the new Schönfeld, Maximilian, and Ludwig's Vorstadt), and of 3 suburbs or villages on the right bank of the Isar, the principal of which is that of Au. Beautiful streets and squares are found in the new parts of the city, but there are wide intervals between many of the houses, and the space over which they are scattered is capable of holding double the present population, so that the more modern and magnificent part of Munich has still a somewhat unfinished appearance. The most animated streets are in the old town. The Karlstrasse and Ludwigsstrasse are the most imposing thoroughfares of the new city. In the former are the Glyptothek, Pinakothek, and church of St. Boniface; in the latter, the university, the blind asylum, the new royal riding school, the new palace for the ministry of war, and various learned and public institutions. The Max-Joseph's square, adorned with Rauch's statue of Maximilian Joseph, and facing the massive structure of the new royal palace, is the largest square of Munich. Among the other beautiful squares are the Odeon, Wittelsbacher, Karolinen, Maximilian, Karls, Königs, and Promenaden Platz, all more or less adorned with statuary. The most frequented public promenades are the royal park or Hofgarten, the Sonnenstrasse, and the English garden, originally laid out by Count Rumford and containing several fine works of art.—Munich is the seat of an archbishop, and contains upward of 20 Roman Catholic churches and chapels. St. Peter's, the oldest ecclesiastical edifice, dates from the 13th century. The cathedral (*Frauenkirche*), completed at the end of the 15th, is a vast Gothic building, remarkable for its two lofty dome-capped towers. St. Michael's, or the Jesuits' church, is about 300 feet in length, and remarkable for the beauty of the interior and for the width of its roof, unsupported by pillars. The church of St. Cajetan contains the tombs of the royal family and Thorwaldsen's celebrated monument of Eugène de Beauharnais. Still more remarkable are the modern churches. The All Saints' chapel (*Allerheiligen-Hofkapelle*), built in the Byzantine or Lombard style after the designs of Klenze, was opened in 1837; it is embellished with marble, mosaics, painting, and gilding. The columns are of red Tyrolese marble with white bases and gilded capitals; the base of the walls is also of red marble. The upper part of the aisles is incrusted with different colored marbles. All the rest is covered with religious paintings in fresco upon a golden ground, executed by Hess and his pupils. The *Ludwigs-Kirche*, in the round arch style, is also famous for the beauty of its execution and its designs, and for the wealth of its decorations, which comprise colossal statues of St. Peter and St. Paul and other works by Schwanthaler, and Cornelius's great fresco painting of the "Last Judgment," upward of 60 feet high. The parish church of St. Maria Hilf in the suburb of Au, built by Ohlmüller between 1831 and 1839, in the German pointed style of the 14th century, with high lancet widows, contains 19 splendid painted windows illustrative of incidents in the life of the Holy Virgin, designed by the most eminent Munich artists and executed in the royal porcelain manufactory. The church or basilica of St. Boniface, attached to the Benedictine convent of the same name, built between 1835 and 1850 in the Byzantine style, is the largest and most splendid of them all. The front has a portico of 8 Corinthian columns with 3 bronze doors. The side façades have a double row of round-headed windows. The interior is divided into a nave 51 feet wide, and 70 double aisles, 15 feet wide and 40 feet high, supported on each side by 64 monolithic columns of marble disposed in 4 rows. The pavement is of marble mosaic, and the roof of open timber work, the beams of which are carved and richly decorated, and the ceiling between them azure with golden stars. The walls are decorated with frescoes, the upper series commemorative of German saints and martyrs, and the lower series of the life of St. Boniface, executed by Heinrich Hess and his scholars. The small church of St. Salvador has been used for the Greek worship since the accession of King Otho to the throne of Greece; it has a service of plate presented by the late czar Nicholas. A beautiful place of worship for Protestants was opened in 1832, and a synagogue in 1826. Convents were suppressed at the beginning of the 19th century, but several of them were restored in 1829.—Prominent among the numerous charitable institutions of Munich are the general hospital (N. W. of the cemetery, which is one of the finest in Germany), and several other hospitals and orphan asylums, a lunatic asylum, children's asylums, &c. At the head of the educational institutions stands the university, which was removed from Landshut to Munich in 1826, and which in the first 6 months of 1860 had 1,092 matriculated students and upward of 70 professors. Its jubilee was celebrated with great pomp in 1859. The chair of chemistry has been occupied since 1852 by Liebig, who is also director of the chemical laboratory and (1860) president of the academy of sciences. The university has a library of 160,000 volumes, and attached to it are a number of schools for various branches of science, and the Georgianum, a Roman Catholic seminary. The city contains also 3 gymnasiums, 4 Latin schools, a normal school, a military academy, a young ladies' school and ladies' college (*Damenstift*), and a great number of other educational institutions, including academies of art, mining, military science, hydraulics, mechanical sciences (in the central polytechnic school), agriculture, commerce, and industry, and public common schools for Catholics, Protestants, and Jews. Under the late and present king, Munich has become the nucleus of a school of poets and of many scientific men. The names of Jacobi, Sömmering, Schelling, Oken, Görres, Fallmerayer, Ennemoser, Seuffert, Liebig, Thiersch, Neumann, and other eminent men have contributed to raise the intellectual importance of Munich. It possesses many scientific collections, the most interesting of which is the museum of natural history, which comprises the Brazilian collection formed by Martius and Spitz in their explorations of that country. In the same building are a cabinet of Greek and Roman coins and medals and a geological museum. There are also various literary associations in the city for historical and other scientific investigations. Among the many libraries, the magnificent public or royal library is the most extensive, having been enlarged by those of suppressed monasteries, and including now upward of 850,000 works in about 800,000 printed volumes, comprising 13,000 incunabula, about 50 xylographic publications, and nearly 19,000 MSS.—The fine arts, however, constitute the chief glory of Munich. The academy of fine arts is divided into the sections of architecture, sculpture, painting, and lithography, the last named art having been invented in Munich by Aloys Senefelder, a native of Prague, at the close of the 18th century. It contains a museum of antiquities and casts, the Schwanthaler museum, and the studios of many artists. Peter von Hess, Heinrich Hess, and Kaulbach are residents of Munich. The famous Glyptothek or sculpture gallery was built by Klenze from 1816 to 1830, and contains collections of statuary from the earliest eras of art to the present time. It is divided into 12 halls. The 1st contains Egyptian and the 2d the earliest Greek and Etruscan antiquities. Most celebrated is the 3d hall, with the Æginetan marbles discovered in 1811 by Haller and the Englishmen Cockerell and Forster, and restored by Thorwaldsen. These sculptures are classed among the most valuable remains of antiquity, artistically as well as archæologically, from the connection which they show between the primitive practice of art to which they belong and its perfection in the period of Phidias. The 4th hall is called the hall of Apollo from the statue of that god in Parian marble ascribed to Ageladas, and formerly called the Barberini muse. The 5th hall (hall of Bacchus) contains the sleeping or Barberini fawn, and other famous works. The 6th hall (hall of the sons of Niobe) is remarkable for a kneeling figure of Ilioneus, the youngest son of Niobe. The subjects in the 7th hall (hall of the gods) illustrate heathen mythology, and those in the 8th (Trojan hall) the heroes of Homer. In the 9th, or hall of heroes, are statues of Alexander the Great and Nero; and the 10th, or Roman hall, is remarkable for its decoration, and contains a series of busts of emperors, which exhibit the decline of Roman art. The 11th is the hall of colored sculpture, and the 12th hall is devoted to modern statuary, including a copy of Canova's Paris and Venus, Thorwaldsen's Adonis and bust of King Louis, Schadow's "Girl fastening her Sandal," and other modern works. The colossal marble statues of Lorenzo Ghiberti and Donatello, respectively by Brugger and Von Lossow, were added to the Glyptothek by ex-King Louis in 1860.—The Pinakothek or picture gallery, a more extensive building than the Glyptothek, also designed by Klenze, of which the foundation was laid on Raphael's birthday, April 7, 1826, was completed in 1836. It contains about 1,300 paintings, consisting of the best works of the royal collections, arranged according to schools in 9 halls and 23 adjoining apartments or small cabinets in the 2d story of the building, the large works of each school being placed in the central hall, which communicates on one side with the apartments where the smaller paintings are placed and on the other with an extensive corridor, which is itself divided into 25 compartments or *loggie*, and adorned with frescoes by Cornelius illustrative of the history of the fine arts during the middle ages. Among the paintings are works of Cimabue, Giotto, Leonardo da Vinci, Correggio, Titian, and other Italian artists. The genius of Michel Angelo is illustrated in his capacity of painter, sculptor, and architect; and an entire compartment is filled with the works of Raphael. Albert Dürer, Rembrandt, Vandyke, and the other masters of the German, Flemish, and Dutch schools, are fully represented; and 95 works of Rubens take up the entire space of the central and largest hall of the gallery. There are also a few pictures by Murillo, Velasquez, Poussin, Claude, Vernet, and other artists of the Spanish and French schools. The lower story contains collections of 9,000 drawings by the old masters, including some of Raphael, Fra Bartolomeo, &c.; also the drawings of Cornelius for the *loggie*, and 3,000 drawings of South American scenery by Johann Lorenz Rugendas. The cabinet of engravings comprises about 300,000 works. On the ground floor of the W. wing is a collection of Etruscan and other vases On the N. is the new Pinakothek designed by Voigt, begun in 1846 and completed in 1853, destined for the works of contemporary artists, and comprising 52 rooms in two stories. The upper floor, which contains them, is divided into 5 large central halls, 5 rooms on the south and 14 small cabinets on the north, beside a room at the west with Rottmann's encaustic paintings, views and illustrations of Grecian history and localities. In the central hall are Kaulbach's "Destruction of Jerusalem," and Schorn's "Deluge." It contains also Wilkie's "Reading of the Will." On the ground floor is the collection of paintings on porcelain, including copies of the most celebrated works of the picture gallery. A new building for the exhibition of works of art, designed by Ziebland in the Corinthian style, was opened in 1846. In the old picture gallery on the N. side of the royal park is a collection of antiquities and curiosities from different parts of the world. The Leuchtenberg gallery of paintings was removed to St. Petersburg in 1853. The new royal palace (*der neue Königsbau*), a magnificent and stupendous building, contains a large number of works of art. The interior presents an imitation of the ornaments of the *loggie* of the Vatican. The ground floor consists of state rooms painted in fresco by Schnorr, illustrative of the *Nibelungen*. The kings' and queens' apartments are adorned with paintings respectively from the Greek and German poets. The decorations of the throne room, drawing room, bedroom, writing room, and library of the queen are respectively devoted to Klopstock, Wieland, Goethe, Schiller, and Tieck. The most interesting part of the palace is the so called *Fest Saalbau*, containing on the E. side of the ball room two rooms for card playing called halls of the beauties, with portraits of beautiful women of modern times, including that of Lola Montez. The banquet hall, hall of Charlemagne, hall of Barbarossa, and hall of Rudolph of Hapsburg are all decorated with choice works. The most stately of them all is the throne room. The Leuchtenberg palace in the Odeon square is a fine building. The new Wittelsbach palace in the Gothic style, begun in 1843 and completed in 1849, has been the residence of King Louis since his abdication. Among the other remarkable monuments of Munich is the Bavarian hall of fame, on the W. side of the Theresienwiese, consisting of a Doric portico forming 3 sides of a quadrangle, in the centre of which stands, on a pedestal of the height of 28½ feet, Schwanthaler's colossal statue of Bavaria, 61½ feet high, representing the protectress of Bavaria, accompanied by a lion. The busts of distinguished Bavarians are placed along the walls behind the 48 columns of the hall. In the tympana are 4 recumbent figures by Schwanthaler representing the 4 principal provinces of the kingdom. In the frieze are 92 metopas, all from designs of Schwanthaler. The triumphal arch (*Siegesthor*), at the N. end of the Ludwigsstrasse, is also a beautiful monument; and the foundation stone of a new arch in the old Doric style, to be called *Propyläen*, designed by Klenze, was laid in 1853 at the end of the Briennerstrasse. A corn hall (*Schrannenhaus*) was opened in 1853, and other new buildings are in progress. A new street (Maximilianstrasse) has also been recently formed with a view of the further enlargement of the city in the direction of the Isar.—The theatres and musical entertainments of Munich are among the best in Germany. Among the popular festivals is the annual agricultural meeting on the first Sunday in October (*October-* or *Volksfest*), which is held on the Theresienwiese, and lasts several days. The same place is used for horse races, &c.—The principal article of trade is grain, and two great fairs are held annually. The breweries of Munich enjoy a high reputation. The manufactures comprise woollen cloth, leather, silk, cotton, calicoes, tobacco, beet root sugar, pianofortes, playing cards, jewelry, bronze and iron works, coaches, and mathematical, surgical, optical, and astronomical instruments. Among the most celebrated industrial establishments are the royal bronze foundery; the bronze foundery of Stiglmayer; the royal painted glass and the royal porcelain manufactories; the establishment of Ettel, founded in 1815 by Reichenbach, for the manufacture of technological instruments; and Fraunhofer's manufactory of telescopes and optical instruments. Crawford's bronze statues of Beethoven and Washington and Quarenstroem's statue of Berzelius were cast in the royal foundery.—The name of Munich (*Munichen*) occurs for the first time at the beginning of the 12th century. It became the residence of the dukes of the house of Wittelsbach, and was much enlarged after its destruction by fire in 1327, and endowed with many public buildings by William the Pious *(1579–1626)* and the elector Maximilian I. *(1596–'51)*. On May 17, 1632, it was taken and held for some time by Gustavus Adolphus of Sweden. Under Charles Theodore (1777–'99) Munich was greatly improved and still further enlarged; and from an inferior town it has risen under the fostering care of King Maximilian I. (1799–1825), and particularly under that of his son Louis, to the rank of an important capital. While still crown prince Louis ordered the building of the Glyptothek and of other public works; and from his accession to the throne (1825) until his abdication (1848) he contributed most powerfully to invest Munich with its present splendor. Munich was entered by the French under Moreau, July 2, 1800, and on Oct. 12, 1805, by Napoleon, who again visited the city, Jan. 14, 1806, on occasion of the marriage of Eugène de Beauharnais. During the revolution of 1848 disturbances broke out in Munich, in consequence of which Lola Montez, who was supposed to exercise much influence over the king, was compelled to resort to flight, and the king himself abdicated, March 20, 1848, in favor of his son Maximilian II., who has since endeavored to imitate the example of his father in constantly enriching his capital with new treasures of art and learning. The railway to Vienna was opened Aug. 12, 1860.

MUNJEET, the root of an East India plant, *rubia munjista*, used for the same purposes as madder. The roots are of similar appearance as to size, &c., to those of madder, and are found in commerce in bundles of 2 or 3 feet in length. The coloring principle appears to be alizarine, and, as in madder, this is convertible into garancine, for which purpose the roots are used in Europe. Munjeet dyes a very bright scarlet.

MUNK, SALOMON, a French orientalist, of Jewish origin, born in Glogau, Prussian Silesia, in 1807. He was educated in Berlin and Bonn, and with the assistance of Michael Beer, brother of Meyerbeer, he was enabled to avail himself of the instruction of Sylvestre de Sacy and Chézy in Paris. In 1835 he visited the university of Oxford, with a view of collecting materials for an edition in the original Arabic text in Hebrew letters of the celebrated work of Maimonides, *Moreh nebukhim* ("Guide of the Erring"), the publication of which he commenced in 1856, with a French translation and notes under the title of *Le guide des égarés*. In 1840 he was appointed deputy custodian of the oriental MSS. in the royal library of Paris. In the same year he accompanied Sir Moses Montefiore and M. Crémieux to the East on their mission in behalf of the persecuted Jews of Damascus, and secured in Egypt many interesting Arabic MSS. relating to the early literature of the Caraites and to other branches of eastern scholarship. On his return to Paris he devoted himself so assiduously to his learned researches that failing eyesight eventually compelled him to relinquish his office in the library, and he has lived in retirement since 1852. He wrote an exhaustive work on Palestine (*Palestine, description géographique, historique et archéologique* (Paris, 1845, included in Didot's collection of the *Univers pittoresque*), and furnished many valuable dissertations to the *Encyclopédie des gens du monde*, and to the *Journal Asiatique*. A portion of his contributions to the *Dictionnaire des sciences philosophiques*, on Arabic and Hebrew philosophy, has been translated into German under the title of *Philosophie und philosophische Schriften der Juden* (Leipsic, 1852). In 1843 he published a paper to disprove the assertion of Sedillot, who had endeavored to deprive Tycho Brahe of the merit of the discovery of the variations of the moon, and to trace it to the Arabs in the 10th century. He has also written *Réflexions sur le culte des anciens Hébreux dans ses rapports avec les autres cultes de l'antiquité* (1833), and other works.

MUNKÁCS, a town of N. Hungary, county of Bereg, on the Latorcza; pop. about 5,000. E. of it, on a high rock, is situated the fortress of the same name, distinguished in Hungarian history by numerous sieges, and now used by the Austrians as a state prison. During the war of 1848–'9 the town and fortress were in the hands of the Hungarians. Among the renowned captives of Munkács was Ypsilante.

MÜNNICH, Burkhard Christoph, count, a Russian soldier and statesman, born in the then Danish duchy of Oldenburg in 1683, died in St. Petersburg about 1767. He was the son of a peasant who was ennobled by Frederic III., king of Denmark, and early distinguished himself as a soldier. He was made a prisoner in the battle of Denain, and sent to Cambrai, where he was very kindly treated by Fénélon. In 1720 he was received with distinction by Peter the Great, to whom he had been introduced by Prince Eugene, and who confided to him the execution of the great canal of Ladoga. In the reign of Anna he became field marshal and president of the council of state. He besieged and conquered Dantzic in 1734, and was on his return employed in quelling disturbances in Warsaw. In 1735 he was called to the chief command of the army against the Turks, and gained great distinction by his triumphs over the enemy. He desolated the Crimea (1736), took Otchakov (1737), crossed the Dniester near Sinkowza (1739), defeated the Turks near Stevutchan, seized the fortress of Chocim, and occupied Moldavia. The treaty of Belgrade (Sept. 18, 1739) put an end to the war. Previous to the death of the empress he prevailed upon her to appoint the duke Ernest Biron of Courland as regent during the minority of her successor. But his hope of securing in this manner his own influence was disappointed by the duke taking the power into his own hands, upon which Münnich caused him to be arrested, and transferred the regency nominally to Princess Anna, the mother of Ivan, the young presumptive heir to the crown, while he assumed the reins of government as prime minister of the empire, endeavoring to consolidate his power by an alliance with Prussia. The regent Anna lavished upon him her bounties, but entered into negotiation with Austria and Saxony in order to neutralize Münnich's coalition with Prussia, in consequence of which he relinquished his office (May, 1741). He was on the point of removing to Königsberg, when on the accession of Elizabeth to the throne (Dec. 1741) he was arrested by order of the empress and sentenced to death. The sentence was afterward commuted to exile to Siberia, but his estates were confiscated. He spent nearly 20 years in exile, raising vegetables for a livelihood, until 1762, when at the age of 79 he was recalled by Peter III., who restored to him his property and position. He enjoyed the friendship both of this sovereign and of Catharine II., who appointed him in the same year director-general of the Baltic ports. His *Ébauche pour donner une idée de la forme du gouvernement de l'empire de Russie* was published in Copenhagen in 1774.

MUÑOZ, Fernando, duke of Rianzares, husband of Maria Christina, queen dowager of Spain, born at Tarancon, province of Cuenca, in 1810. He was of very low birth, and while a private in the royal guards attracted by his personal beauty the attention and admiration of Maria Christina, to whom he was secretly married, Dec. 28, 1833, a few months after the death of her husband, King Ferdinand VII. His sister at the time was a washerwoman. The marriage was publicly solemnized, Oct. 13, 1844, and Muñoz was made duke of Rianzares, a Spanish grandee of the first class, and a knight of the golden fleece. On the occasion of the marriage of the duke de Montpensier to the sister of Queen Isabella II., Louis Philippe of France bestowed upon Muñoz the French title of duke of Montmorot.

MUNSELL, Joel, an American printer, born in Northfield, Mass., April 14, 1808. He established himself in Albany in 1827, and was publisher and editor of the "New York State Mechanic" from 1841 to 1843. He has compiled "Annals of Albany" (10 vols. 12mo., Albany, 1850–'58); "Chronology of Paper and Paper Making" (1 vol. 8vo., Albany, 1857); and "Every Day Book of History and Chronology" (1 vol. 8vo., New York, 1858). He has also published "Historical Series" (7 vols.), in great part edited and annotated by himself, and "Woodworth's Reminiscences of the City of Troy;" and has at various times been the publisher of the "Unionist," "Albany Daily State Register," "Albany Morning Express," and "Statesman." Mr. Munsell has made the art of printing, in its history and application, a special study, and his collection of works on the subject, the largest ever made in America, has been in part purchased by the state for the New York state library. Beside the works enumerated, Mr. Munsell has contributed papers to the "Transactions" of the Albany institute.

MUNSTER (anc. *Mumhan*), the largest and southernmost of the four provinces of Ireland, bounded N. by Connaught, E. by Leinster, and on other sides by the Atlantic, and comprised between lat. 51° 26′ and 53° 12′ N., and long. 6° 56′ and 10° 30′ W.; length, 143 m.; breadth, 181 m.; area, 9,476 sq. m.; pop. in 1851, 1,857,243. The surface is much diversified. In the W. are the highest mountains in Ireland, and the S. is crossed by long chains of hills. About ⅘ of the surface is arable, and ¼ actually under tillage. The principal rivers are the Blackwater, Suir, Lee, Bandon, Mague, Cashen, and Fergus, with the estuary of the Shannon, all of which are navigable. Except in the rugged uplands of Kerry, Clare, and western Cork, the limestone soil of Munster is of excellent quality. The climate is the most genial in Ireland. Geologically, the province is peculiar in Ireland for the rare appearance of igneous protrusions and the absence of bituminous coal, though possessing perhaps the most extensive anthracite deposit in the British isles. Clay slate is found, and copper abounds all along the S. coast. Lead, silver, iron, alum, black and mottled marbles, plastic clays, and fine ochres are found. The province is divided into the counties of Clare, Cork, Kerry, Limerick, Tipperary, and Waterford. As a kingdom of the Irish pentarchy, Mumhan was, perhaps, the most formidable of the 5 states; it early subjected Leinster to the payment of an annual tribute; its princes successfully opposed and ultimately expelled the Danes, and more than once usurped the sceptre of Tara as sovereigns of the entire island. It was then divided into 3 principalities, Thomond, Desmond, and Ormond (*i. e.*, North, South, and East Munster), and Cashel was the civil, as it is still the ecclesiastical, metropolis. Till a recent date, the sovereigns of England governed the province through a local viceroy.

MÜNSTER, a city of Germany, capital of the Prussian province of Westphalia and of an administrative division of its own name, on the small river Aa, connected by railway with the principal cities of Europe, and with the river Ems by a navigable canal, about 80 m. N. N. E. from Cologne; pop. about 25,000. It is an ancient city with fine Gothic buildings, the ground floor of the houses of the main street being provided with arcades to support the upper stories. Among the public buildings are the cathedral and St. Lambert church, from the tower of which still hang the iron cages in which the bodies of John of Leyden and the other leaders of the Anabaptists were suspended after their execution in the great square. The house of John of Leyden still exists in the market place. The *Friedenssaal*, or hall of peace, in the town hall, derives its name from the peace of Westphalia, which was signed there in 1648 and ended the 30 years' war. The Catholic university, which was supplanted in 1818 by the state university of Bonn, has been since reduced to a college of the theological and philosophical faculties. The manufactures consist of leather, woollen goods, cloth, linen, sugar, &c. Münster was known in the time of Charlemagne under the name of Mimigardevord. In the 13th century it joined the league of the Hanse towns. The reformation was introduced there in 1532, and in 1535 and 1536 it witnessed the agitations of the Anabaptists. The former bishopric of Münster was raised in the 12th century to the rank of an imperial principality. In 1719 the archbishop of Cologne was invested with the see of Münster. In 1803 the bishopric was secularized, and a part of it ceded to Prussia, which constituted it a principality. This was by the treaty of Tilsit in 1807 ceded to France, but restored to Prussia in 1815, with the exception of a small district allotted to Oldenburg.

MÜNTER, BALTHASAR, a German clergyman and author, born in Lübeck, March 24, 1735, died in Copenhagen, Oct. 5, 1793. He studied theology at Jena, was for a time a preacher at Gotha, and became eventually celebrated as a pulpit orator in the German church of Copenhagen, and as the editor of the *Bekehrungs-Geschichte* of Count Struensee, whom he had attended on the scaffold (Copenhagen, 1772; English translation entitled "A faithful Narrative of the Conversion and Death of Count Struensee," &c., by the Rev. Mr. Wendeborn, 2d ed., London, 1774). He wrote a series of hymns (1773 and 1774). He was the father of the authoress Friederike Brun.—His son FRIEDRICH, born in Gotha, Oct. 14, 1761, died April 9, 1830, was educated in the universities of Copenhagen and Göttingen. He spent several years in Italy, and while in Rome caused a copy of the Coptic translation of the book of Daniel to be printed (1786), and discovered in the Corsini library the statute book of the templars, which he published in Berlin in 1794. From 1790 to 1808 he was professor of theology at the university of Copenhagen, and from that time till his death bishop of Seeland. He left various important historical and theological works.

MUNTJAC (*cervulus*, Blainv., or *stylocerus*, H. Smith), the name of several small East Indian deer, which seem to make the transition from the typical *cervidæ* to the musk deer. The horns are small, with only one anterior snag, elevated on pedicels supported by longitudinal ridges on the face; there are large canines in the upper jaw, and large and deep suborbital pits; there are no metatarsal glands nor tufts; the hoofs are triangular, partly united in front by a web, and the false hoofs small and transverse; the hair is thin, shining, and generally unspotted, and the tail is tufted. The form is light and elegant; the few species inhabit the forests and jungles of elevated regions in India and its archipelago, where they are hunted by the natives and Europeans, usually with dogs, for the sake of their excellent venison. The common muntjac or kijang (*C. vaginalis*, Gray) is dark reddish brown, with the lower parts lighter, and a narrow white streak on the front edge of the thigh; it is about 2½ feet high at the shoulders; in the living animal there are 2 folds of skin along the sides of the ridges which support the horns, uniting below like a V, but drying after death in 3 ribbed lines which suggested to Pennant the name of rib-faced deer. The principal horns are 4 or 5 inches long, at first straight, but curving inward and backward at the top, the anterior antler being about 1½ inches; the pedicels upon which they rest are 3 inches high, covered with skin and hair, so that when the antlers are shed they appear to have straight horns. The food consists chiefly of a kind of sugar cane, and malvaceous and succulent plants. Its speed and agility are great, the flight being generally in a circle; when brought to bay, it is capable of inflicting severe wounds upon the dogs with its canines; it is also taken in snares, and falls a frequent victim to beasts of prey. It is found in Sumatra and Java. The Nepaul muntjac (*C. moschatus*, Blainv.) is bright reddish yellow, the thigh streaked and under the tail white, and the chin and throat whitish. The Chinese muntjac (*C. Reevesii*, Gray) is grayish brown, with the hair short with paler rings; it has a larger head and tail than the common species, with less red and more bluish tinge, and no white over the hoofs. According to Gray, the earl of Derby had these 3 species at the Knowsley menagerie; but they so bred together that it became "impossible to discriminate the mules from the original species."

MÜNZER, Thomas, a German religious and social revolutionist, born in Stolberg, Prussian Saxony, about 1490, beheaded in Mühlhausen, Thuringia, in 1525. Though in humble life, his parents were not poor, and he is said to have studied at Wittenberg and afterward at Leipsic, and to have been employed as a tutor in different towns. In 1519 he became chaplain of a nunnery near Leipsic, and in 1520 pastor of the principal church of Zwickau. His restless disposition and reformatory zeal led to quarrels with his colleagues, who were conservative followers of the reformation, and were supported by the aristocracy of the town, while Münzer aimed at social and political as well as ecclesiastical reforms, and exerted considerable influence upon the lower classes, particularly upon Nikolaus Storch, one of the numerous cloth weavers of Zwickau. Münzer and Storch became the leaders of a portion of the Anabaptists, who counted many adherents among the populace, and who afterward took part in the peasants' war. Münzer's agitation at Zwickau assumed such formidable proportions that he was compelled to leave the town at the end of April, 1521, after which he travelled as an itinerant preacher in different parts of Germany and Bohemia. At the beginning of 1522 he repaired to Wittenberg, where his disciples of Zwickau, the so called Zwickau prophets, had already begun to agitate the public mind. He put himself in relation with Melanchthon and Bugenhagen, but his sympathies were with Carlstadt and other ultra-radical leaders; to their measures, however, Luther was so firmly opposed, that Münzer was induced to take his departure. In April, 1523, he succeeded in obtaining a curacy at Allstädt. He introduced into the service a variety of innovations, circulated inflammatory writings in various parts of Germany, and founded a secret league, the principal object of which was to undermine the influence of the moderate reformers, and to revolutionize the country. In order to put an end to his proceedings, Luther appealed to the elector Frederic of Saxony, who repaired in the beginning of 1524 to Allstädt. Münzer delivered in the presence of the elector a sermon of the most revolutionary character, in consequence of which the publication of his writings was prohibited, and he was summoned to the seat of government. He persisted, however, in fomenting sedition. A Roman Catholic chapel in Malderbach was burned in June, 1524, at his instigation; and he called upon the populace to exterminate popery and to abolish the government by force of arms. After having been summoned for the second time before the authorities at Weimar (Aug. 1), he was expelled from Allstädt, and a few weeks afterward he betook himself to Mühlhausen, although Luther had cautioned the authorities against him. Conspicuous among the disciples who had preceded him there was Heinrich Pfeifer, a former friar, who now became the principal auxiliary of Münzer in his warfare against Luther. After spending some time in Nuremberg and Basel and in other parts of southern Germany and Switzerland, he returned to Mühlhausen in Dec. 1524. His influence there over the common people was so irresistible that many of the higher classes left the town, of which Münzer and Pfeifer became the sole rulers. The outbreak of the peasants' war in south Germany and Franconia became the signal of the most furious excesses on the part of Münzer and his followers. Under the influence of religious fanaticism and the love of plunder, the peasantry of the whole western portion of Thuringia rallied under Münzer's banner, destroying the mansions of the aristocracy and the houses of religious bodies, and only sparing the residences of those nobles who had joined their movement, and provided them with troops and arms. Mühlhausen was the head-quarters of this movement, which combined the religious Anabaptist with the social and political revolutionary element. But dissensions soon broke out between Münzer and Pfeifer, and the citizens of Frankenhausen, which town was in the possession of the revolted peasants, opened negotiations with Count Albrecht of Mansfeld, who was supported in his operations by several German princes. A bloody battle was fought on May 15, which resulted in the total defeat of the peasants. Münzer fled in disguise to Frankenhausen, but was captured and removed to the castle of Heldrungen. From that place he addressed a letter to the people of Mühlhausen (May 17), recommending his wife and child to their care. After the capitulation of that town the principal ringleaders were sentenced to death, including Münzer and Pfeifer. Münzer was beheaded on the public market place. The holy sacrament was administered to him, according to the directions of Duke George, after the fashion of the Roman Catholic church.—See Melanchthon, *Die Historie von Thome Müntzer* (1525); Strobel, *Leben, Schriften und Lehren Thomas Münzer's* (Nuremberg, 1795); Seidemann, *Thomas Münzer* (Dresden and Leipsic, 1842); and Heinrich Leo's essay on him in the *Evangelische Kirchenzeitung* (Berlin, 1856). Theodor Mundt has made the life of Münzer the basis of a historical novel, *Thomas Münzer* (3 vols., Altona, 1841).

MURAD. See Amurath.

MURÆNA. See Eel, vol. vii. p. 24.

MURAT, Joachim, a French soldier, and king of Naples, born at La Bastide-Fortunière, near Cahors, March 25, 1771, executed in Calabria, Oct. 13, 1815. He was the son of an innkeeper, was educated for the church at the college of his native town, and afterward at Toulouse, and was ordained sub-deacon; but having been dismissed from the seminary on account of some youthful follies, he enlisted in a regiment of chasseurs. Cashiered for an outbreak of temper after he had risen through some of the lower grades, he became a waiter at a café in Paris. He soon entered the constitutional guard of Louis XVI., and on its dissolution received a sub-lieutenancy in a cavalry regiment, where he distinguished himself by soldierly efficiency and revolutionary spirit. He even wrote to the club of Jacobins declaring his intention of altering his name to Marat. For this indiscretion he was cashiered after Robespierre's overthrow on the 9th Thermidor, but at the end of a few months was restored to his rank as colonel, and on the 13th Vendemiaire served as aide-de-camp to Bonaparte. He accompanied the young general to Italy, where his heroism commanded universal admiration. After Beaulieu's defeat, he was sent to Paris to deliver to the directorial government 21 standards which had been taken from the Austrians, received a triumphal welcome in the metropolis, and returned to his post to share in the brilliant achievements that marked the latter part of 1796 and the campaign of 1797. He was still actively engaged in Italy, and had won the rank of brigadier-general, when he heard of the expedition to Egypt; he hastened to Toulon, and on May 10, 1798, embarked with Bonaparte for that country. Here he found an appropriate field for his skill as a cavalry officer, and made a deep impression even upon the Mamelukes. He was wounded at the taking of Alexandria and in the battle of the pyramids, and shone conspicuously in the Syrian campaign, contributing to the victory at Mount Tabor, April 16, 1799, and leading the assault at Acre. He did wonders in the battle of Aboukir, July 25, when he was again wounded, and was rewarded with the rank of general of division. He left Africa with Bonaparte, who had conceived a strong liking for him, and in the *coup d'état* of the 18th Brumaire was at the head of the grenadiers who expelled the council of 500 from their hall at St. Cloud. The chief command of the consular guard and the hand of Caroline Bonaparte were his recompense. At Marengo he was at the head of the cavalry, and in 1801 commanded the army which invaded the kingdom of Naples and took possession of Elba. He was then appointed governor of the Cisalpine republic, and in 1804 of Paris. He was now made a member of the legislative body, and on the accession of Napoleon to empire received the baton of a marshal and the title of prince, and was made grand admiral and grand cross of the legion of honor. He had a large share in the success of the campaign of 1805 in Germany, where he led the cavalry, and was instrumental in the victory at Austerlitz. In 1806 he was made grand duke of Berg and Cleves. His abilities were strikingly displayed in the battles of Jena, Eylau, and Friedland, and still more in following up the results of these victories. In 1808 he was placed in command of the army which invaded Spain, where he gave evidence of generalship and good policy, and, in the secret hope of being made king of Spain by his brother-in-law, managed to secure considerable popularity among the Spaniards. After the elevation of Joseph Bonaparte to the Spanish throne he repaired to Italy, where, on Aug. 1, 1808, he was proclaimed king of the Two Sicilies, under the name of Joachim Napoleon. He attempted to ameliorate the condition of his new subjects, encouraged agriculture and industry, improved the public finances, increased the navy, and organized an army 70,000 strong. But unluckily he dreamed of vindicating the perfect independence of Naples, and, as a measure in this direction, ordered that all foreigners in his service should renounce allegiance to their native country. This imprudent edict, aimed especially at the French, called forth an imperial decree, declaring that, the kingdom of Naples being part of the French empire, every Frenchman should be of right a citizen of the Two Sicilies. The king was deeply wounded by this assertion of superiority, and listened to overtures from various European powers, particularly Austria. He durst not, however, disregard Napoleon's summons to take part in the campaign against Russia, and was, as usual, intrusted with the supreme command of the cavalry. At Borodino he heroically withstood the Russian fire during the whole day, and like Ney, his rival in bravery, came off untouched. But his energy seemed to falter when the retreat from Moscow commenced, especially after he had been worsted at Winkowo, Oct. 18, 1812. He however received the chief command of the army when, on Dec. 5, Napoleon left it in haste for Paris. But Murat proved unequal to his arduous task; he was anxious to return to Italy, and on Jan. 16, 1813, suddenly took his departure. Repairing to his capital, he resumed his secret negotiations with the enemies of Napoleon; but his old affection overcoming his anger, he joined his brother-in-law in the campaign of 1813, and displayed his wonted intrepidity again at Dresden, Wachau, and Leipsic; but foreseeing the approaching fall of the emperor, he returned to Italy to look after his own interests. Here he was led astray by his wavering sentiments and political shortsightedness; he signed, Jan. 11, 1814, a treaty with Austria, by which his kingdom was guaranteed to him, on condition that he should act in concert with the allies at the head of an army of 30,000 men. He accordingly marched against Prince Eugène, viceroy of Italy, and forced him to retreat toward the Adige. But his new allies, having used him, were ready to abandon him, while the Bourbons were insisting on his overthrow at the congress of Vienna. On hearing of this, he sought the support of the Italian patriots, was secretly reconciled with Napoleon, and on the news of the latter's return from Elba marched against the Austrians. He was at first successful, advancing through the Papal States to the banks of the Po; but being worsted at Ferrara, he was forced to beat a hasty retreat; fought bravely, but ineffectually, for two days, May 2 and 3, at Tolentino (Ancona); was driven in disorder along the sea and across the Apennines, made an ineffectual stand at St. Germano and Mignano, and finally saw his army wasted away by battle and desertion. He now attempted negotiation; but, deserted by even his own emissaries, and the populace of Naples rising in insurrection, he was obliged to fly to Ischia, while his queen took refuge on board an English frigate. From Ischia he went to the shores of Provence, where he arrived on May 25 at night; his own country not offering him a safe refuge, he went to Piacenza, where he remained for two months, and then repaired to Bastia, where he landed Aug. 25. Here he prepared an expedition, not unlike that of Napoleon from Elba. On Sept. 28, at the head of 250 men, with 7 small transports, he set sail for Naples; his squadron was scattered by foul weather, while he himself with a few companions was driven to the gulf of St. Euphemia. He landed on Oct. 8 near Pizzo, attempted in vain to rouse the inhabitants of this village in his behalf, was pursued to the mountains by the peasants of the neighborhood, and fought to the last, but finally fell into the hands of his pursuers and was taken amid insults to the castle of Pizzo, where he was condemned to death by a court martial, and shot forthwith in one of the rooms of the castle. Being offered a chair and a handkerchief. to bandage his eyes, he replied: "I have braved death long and often enough to face it with my eyes open and standing." Léonard Gallois published a *Histoire de Joachim Murat* (8vo., Paris, 1828); and the later events of his career have been chronicled by Coletta, *Les six derniers mois de la vie de Murat* (1821); and by Franceschetti, *Mémoires sur les événements qui ont précédé la mort de Joachim I.* (1826).—By his wife, Maria Annunziata Carolina, Murat left 2 sons and 2 daughters. Both the latter married Italian noblemen, Lætitia Josephine becoming Countess Pepoli, and Louise Julie Caroline, Countess Rasponi. The elder son, NAPOLÉON ACHILLE, born Jan. 21, 1801, after his father's death repaired with his mother to Haimburg, Austria, came in 1821 to the United States, settled in Florida, married a grandniece of Washington, devoted himself to scientific pursuits, and wrote some essays upon the institutions of America. He died April 15, 1847, on his estate near Tallahassee. The younger, NAPOLÉON LUCIEN CHARLES, born in Milan, May 16, 1803, after living near his mother until 1825, went to Spain, where he was arrested on suspicion. After his liberation he came to the United States, and married, his wife earning a support by teaching. On hearing of the events of 1848, he went to France, was welcomed by his father's old friends, and elected by the department of Lot to the constituent and the legislative assemblies. He was envoy extraordinary and minister plenipotentiary to Turin in 1849, became senator, Jan. 25, 1852, and received the title of prince of the imperial family. He is considered by some as a pretender to the crown of the Two Sicilies. He has one son, Joachim, who is an officer in the army, and one daughter.

MURATORI, LUDOVICO ANTONIO, an Italian scholar, born in Vignola, in the duchy of Modena, Oct. 21, 1672, died in Modena, Jan. 23, 1750. After completing his education at the university of Modena, he was ordained priest, and in 1694 was appointed keeper of the Ambrosian library at Milan, where he discovered several inedited Latin and Greek manuscripts, selections from which, with notes and commentaries, he published under the titles of *Anecdota Latina* and *Anecdota Græca*. In 1701 he became conservator of the public archives and principal librarian of Modena. His three great works in illustration of Italian history are *Rerum Italicarum Scriptores* (25 vols. fol., Milan, 1725–'51), *Antiquitates Italicæ Medii Ævi* (6 vols. fol., Milan, 1738–'42), and *Annali d'Italia* (12 vols., Milan, 1744–'9). To publish this vast collection several princes and nobles of Italy subscribed $4,000 each. The best uniform edition of his works is that published at Venice (48 vols. 8vo., 1790–1810).

MURAVIEFF, an ancient noble Russian family originally settled in the former grand duchy of Moscow, and since the latter part of the 15th century in various other parts of the country. No other family in the whole Russian empire enjoys a greater reputation for intelligence, integrity, courage, decision, and activity, but likewise for undaunted pride, than that of Muravieff. Among its eminent members are: I. NICOLAI, who died in 1770, after having been director of the topographical bureau in St. Petersburg, lieutenant-general in the army, and governor of Livonia. He published in 1752 the first rudimentary work on algebra in the Russian language. II. Mihail, born in Smolensk in 1757, died in 1807. He was tutor of the grand dukes Alexander and Constantine, for whose use he prepared a series of essays on history, ethics, and literature. Paul I. appointed him privy councillor, and Alexander I. deputy minister of popular instruction. An edition of his writings was prepared by Karamsin, and published in 3 vols. in Moscow in 1810, and a supplement in St. Petersburg in 1815. III. Nicolai, son of the above mentioned Nicolai, born in Riga in 1768, died in Moscow in 1840. After having been for many years in active service in the Russian army and navy, he established near Moscow a private military academy, many of whose pupils afterward rose to distinction. He took a part in the campaign of 1812–'13, concluded the capitulation of Dresden with Gen. Dumas, and was present at the siege of Hamburg. After the peace he resumed his duties at his academy, which in 1816 was raised to the rank of an imperial institution. He conducted it till 1823, from which time till his death he devoted himself to agriculture. He was one of the founders of the Moscow agricultural society, and caused Thaer's celebrated work on agriculture to be translated into Russian (1830). IV. Nicolai, second son of the preceding, born in 1793. He entered the army in 1810, was promoted after a few years to the rank of captain in the general staff, was employed in the military service in the Caucasus, and published in 1822 an account of his travels in Khiva, to which country he had been sent on a political mission by Gen. Yermoloff. In 1828 and 1829 he took a distinguished part in the Persian war, and in 1831 in the Polish campaign, when he contributed much to the defeat of Gen. Sierakowski near Kazimierz, and to the removal of Gen. Dwernicki's army from the Polish territory. He was made lieutenant-general, commanded during the siege of Warsaw in September the right wing of the Russian army, and stormed the fortifications of Rakowiec. He commanded the Russian corps which landed in Asia, and arrested the advance of Ibrahim Pasha toward Constantinople after his victory at Konieh, and then visited Mehemet Ali in Cairo. Afterward he superintended the construction of the fortifications of Sebastopol, but fell into disgrace in 1838, for having in a sham fight made prisoners Nicholas I. and his staff, who commanded the part of the army opposed to Muravieff, and lived in retirement in Moscow as one of the leaders of the old Russian party until 1848, when he became a member of the board of war, and afterward commander of the corps of grenadiers in the imperial guard. In 1855 he was placed at the head of the army of the Caucasus as general of infantry and governor of Transcaucasia, and distinguished himself in the eastern war by the siege of Kars, which he conducted with great energy and ability from the beginning of June till Nov. 27, 1855, when the fortress was compelled to capitulate. The victory at Kars permitted the Russians to accede to terms of peace under less humiliating circumstances than at the time of the fall of Sebastopol. Muravieff was rewarded with the title of prince, but his haughtiness made him unpopular with his fellow officers and the court, and he has since lived in retirement in Russia, and travelled in southern Europe, although he still holds a seat in the council of the empire, with the rank of adjutant-general and general of infantry. V. Mihail, brother of the preceding, born in 1795. He founded in 1810 a mathematical society in Moscow, assisted his father in the military academy, and afterward officiated as governor of Grodno and Koorsk. In 1842 he became chief director of the corps of surveyors and lieutenant-general, and in 1850 a member of the council of the empire. He is vice-president of the Russian geographical society, and has translated Garnier's *Géométrie analytique* into Russian. VI. Andrei, the youngest brother of the preceding, has travelled extensively in the East and in Italy, and embodied his observations in a series of works which are highly esteemed. They are conceived in a religious and poetical spirit, treat of Syria and Palestine, of Rome, and of various sacred localities in Russia, and comprise about 20 volumes. He is also the author of several dramatic, theological, historical, and ecclesiastical works, including a history of Jerusalem, a biblical history, a history of the first 4 centuries of the Christian dispensation, a history of the Russian church which has passed through several editions, a history of Grusia and Armenia, &c.—Among the other prominent members of this family is Gen. Mihail Muravieff II., who is a member of the government as president of the department of apanages, and was appointed in 1857 minister of the domains of the empire. He took an active part in the promulgation of the decree for the consideration of the abolition of serfdom (Jan. 15, 1858), and has since been actively employed in carrying that measure into practical effect. Lieut. Gen. Muravieff III., another relative, is now (1860) governor-general of Eastern Siberia. He may be called the creator of the Amoor region. He concluded (May 24, 1858) the treaty by which China ceded to Russia the mouth of the Amoor and a large portion of the coast in Empress harbor, south of the river. He was created Count Amoorski, and it is his name which is so often mentioned in relation to China and Japan. Major-Gen. Muravieff IV. was implicated in the movement of 1825, and exiled to the N. of European Russia, near the White sea. After the accession of Alexander II. he was pardoned and appointed civil and military governor of Nijni Novgorod. In this, one of the most important regions of the empire, he took a spirited part in enlightening the nobles on the question of the abolition of serfdom, and ranks among the foremost champions of that great measure.—A branch of the family has adopted the name of Muravieff-Apostol, from the marriage of one of them in the 18th century with a daughter of a Cossack hetman named Apostol. Noticeable among this branch is IVAN (born in 1769, died in 1851), who translated Sheridan's "School for Scandal," Horace's "Satires," and Aristophanes's "Clouds" into Russian, and published in 1822 an account of his archæological explorations in Taurida. He officiated as ambassador at several European courts, and was eventually made a privy councillor and senator. His son SERGEI was a conspicuous leader of the conspiracy against the government in 1825, and after the unsuccessful attempt in St. Petersburg he proclaimed the grand duke Constantine as emperor and took possession of the town of Vassilkov. He was defeated by the Russian troops near Ustinovka, Jan. 15, 1826; his brother Ippolit fell at his side, and he himself was severely wounded and removed to St. Petersburg, where he was executed July 25, 1826. Another brother was sentenced to 20 years' banishment to Siberia.

MURCHISON, SIR RODERICK IMPEY, a British geologist, born in Taradale, Ross-shire, Scotland, Feb. 19, 1792. He was educated in the grammar school of Durham, whence at the age of 13 he went to the military college of Marlow. Leaving this institution in 1807, he received a commission in the 36th regiment of foot, and, after a brief course of study at the university of Edinburgh, embarked in the spring of 1808 with the army under Sir Arthur Wellesley for Portugal. He participated in the battle of Vimiera, the retreat under Sir John Moore, and the battle of Corunna; served on the staff of his uncle Sir Alexander Mackenzie in Sicily, and at the siege of Cadiz; and, after reaching the rank of captain in the 9th dragoons, was in 1815 married, and retired from the service. For several years he occupied himself with foreign travel or with field sports, and about 1822, partly at the suggestion of his wife, and partly at that of Sir Humphry Davy, the latter of whom he occasionally accompanied on angling excursions, he determined to devote himself to scientific pursuits. Between 1822 and 1824 he attended the lectures of the royal institution, was afterward instructed in chemistry by Richard Phillips, and, selecting geology as his speciality, was in 1825 elected a fellow of the geological, and in 1826 of the royal society. His first scientific paper, a geological sketch of certain parts of Sussex, Hampshire, and Surrey, appeared in the "Transactions" of the geological society for 1826; and during the two succeeding years he made investigations in the oolite and old red sandstone formations of Scotland, the results of which were given to the public through the same channel. In 1828, in company with Sir Charles Lyell, he made a geological tour through northern Italy and the Auvergne district of France, 3 memoirs on which, their joint production, were subsequently published. In 1828–'30 he explored the eastern Alps, part of the time in company with Prof. Sedgwick, and in conjunction with him published a memoir on the subject, illustrated by a geological map. Returning in 1830 to England, he commenced a systematic examination of the older sedimentary deposits of England and Wales, his object being to trace the history of the primeval rocks, and the "slow growth and development of nature from the first sediment of mud, sand, and pebbles cast by the accidents and revolutions of unfathomable ages over the fundamental, ancient gneiss, which contains no vestiges of vegetable or animal life." For upward of 7 years he was employed in investigations connected with this subject in western England and Wales, making from time to time announcements of his progress in the scientific journals; and in 1838 he combined the results of his observations in a 4to. volume of 800 pages entitled "The Silurian System," so called from the Silures, an ancient tribe inhabiting that part of the island of Britain in which his labors had been conducted, and in which the system of rocks studied by him is best developed. This work, treating chiefly of those early formations in which the first signs of life begin to occur, first satisfactorily described the relations of various deposits more ancient than the old red sandstone, and to which the name grauwacke had been somewhat loosely applied. The system was divided into an upper silurian, consisting of Ludlow and Wenlock rocks, and a lower silurian, of Caradoc and Llandeilo rocks; and through regularly defined periods and by progressive stages, the march of animal life from the simplest invertebrate types to the higher orders of mammalia was distinctly traced. The deposits through which the silurian creatures were diffused were estimated to exceed 30,000 feet of perpendicular thickness, and their formation to have occupied the longest period in the history of the globe. Anxious to trace the silurian system through other parts of Europe, Murchison in 1835, and again in 1839, made excursions into the Rhenish provinces, and in 1840, in company with M. de Verneuil, visited northern and central Russia. In the same year the two geologists were invited by the emperor Nicholas to undertake a geological survey of Russia, with which they occupied themselves during 1841 and 1842, carefully exploring the Ural mountains and the southern provinces of the empire. Between 1842 and 1845 Murchison visited alone many portions of eastern and northern Europe, including Poland, the Carpathian range, and the palæozoic rocks of Scandinavia; and in 1845, in conjunction with M. de Verneuil and Count von Keyserling, he published an elaborate work on "The Geology of Russia in Europe and the Ural Mountains," in 2 vols. 4to., the 1st relating to the geology and the 2d (in French) to the palæontology of the subject, with copious maps and illustrations. For these services he was made a knight of the Russian order of St. Anne, and received from the emperor the grand cross of the order of St. Stanislas; and in 1846 he was permitted by royal license to wear these orders in England, where he was also knighted. In 1849 the "Geology of Russia" was published in the language of that country, and in the same year the royal society of London rewarded the author of the silurian system with the Copley medal. Sir Roderick's next important contribution to geological science was his "Siluria: the History of the oldest known Rocks containing Organic Remains, with a brief Sketch of the Distribution of Gold over the Earth" (8vo., 1854), in which the existence of the silurian as an independent system, in many parts of both hemispheres, is conclusively established. It contains also an exposition of the author's views of geological theory, and a verification of an opinion previously expressed by him, that those portions of the so called cambrian, or system underlying the silurian, which contain fossils, are merely geographical extensions of the lower silurian deposits. In 1859 appeared the 3d edition of "Siluria," including the "Silurian System," in which are embodied the results of further explorations among the lower palæozoic formations. Among the important discoveries evolved by him is the existence of two distinct gneissic masses in the north of Scotland, which has rendered necessary the preparation of an entirely new geological map of that part of the country. This he has produced in his "New Geological Map of the Highlands," published in the "Quarterly Journal of the Geological Society" (May, 1860). "The new light which has thus been thrown on the history of the geological series of Scotland," says a recent writer, "showing that great masses of crystalline rocks, called primary, and supposed to be much more ancient than the silurian system, are here simply metamorphosed strata of that age, may with justice be looked upon as one of the most valuable results which have been attained by British geologists for many years. It was more especially on this ground that the royal society of Edinburgh deemed it proper to award to the founder of the silurian system the first Brisbane medal, with an address expressing their interest in and admiration for his recent researches in the highlands of Scotland." ("Edinburgh Review," July, 1860.) In Sept. 1860, he finished an extensive survey of the geological structure of the Scottish highlands, the results of which confirm the views embodied in his map above referred to. Not less unremitting have been the efforts of Sir Roderick and his followers to trace the thickness of the silurian strata in various parts of the British isles and the adjoining continent. The superincumbent devonian group bears an almost equal impress of his labors; and the permian system, so named by him from its extensive development in the Uralian province of Perm in Russia, which rests upon the carboniferous group of the great palæozoic division, forming the uppermost series of the latter, has been reëxamined by him both in Russia and Great Britain, and its character clearly defined. "The succession of life from the lower to the higher forms of existence is the grand principle which he traces in all the geological records of nature; but in a very different sense from that which has recently been brought forward by Mr. Darwin. Sir R. Murchison finds in the great geological periods which he has described the clearest evidence, not of an unbroken series of spontaneous development by a process of 'natural selection, or otherwise,' but of distinct species called successively into existence and adapted to the existing conditions of the globe." (*Op. cit.*) Among the most useful of the investigations of Sir Roderick Murchison are those connected with the discovery of the gold fields of Australia, in which he was greatly aided by his previous observations of the geological position and age of the gold veins in the Ural mountains. He had early surmised that the original site of the principal gold masses was in the silurian rocks; and upon comparing specimens brought from Australia in 1844 by Count Strzelecki with Uralian rocks of the same character, he did not hesitate to predict the existence of gold in that part of the world. He subsequently endeavored, though without success, to draw the attention of government to the subject. In his discourse before the geographical society in 1852 he enunciated, from Bain's geological map of Cape Colony and a few other data, a hypothesis of the configuration of the African continent, which was entirely confirmed by the explorations of Dr. Livingstone in 1853–'6. Of the remaining works of Sir Roderick, the principal are: "Outline of the Geology of the Neighborhood of Cheltenham" (8vo., Cheltenham, 1834); memoirs "On the Geological Structure of the Alps, Apennines, and Carpathians," published after a 6th visit to the Alps; on the "Permian System," "On the Geological System of the North of Scotland," &c., contributed to the "Transactions of the British Association," and the "Quarterly Journal of the Geological Society;" and upward of 100 other papers published subsequent to 1825 in the scientific periodicals of Great Britain. In 1831 and 1832, and again in 1842 and 1843, he was president of the geological society; and in 1845, 1846, 1852, and 1856 he occupied a similar position in the royal geographical society. He took an active part in founding the "British Association for the Advancement of Science," of which he was elected the presiding officer at the Southampton meeting in 1846; and in 1851 he succeeded in establishing the new section of physical geography, ethnology, and philology. In 1855, in accordance with the request of the leading geologists and scientific men of Great Britain, he was appointed to succeed Sir Henry De La Beche as director-general of the geological survey of the United Kingdom, a position which he still holds. He is also director of the metropolitan school of science applied to mining and the arts, and a member of the principal scientific bodies of Europe.

MURCIA, an ancient province or kingdom of Spain, bounded N. W. and N. by New Castile, N. E. and E. by the province of Valencia and the Mediterranean, S. E. and S. by the Mediterranean and Granada, and W. by Andalusia; area, 7,877 sq. m. The coast from the confines of Granada to Carthagena is rocky and precipitous, but eastward from that port it is in general low and sandy. The surface is mostly mountainous. The principal ranges are the Sierra de Sagra, which nearly bisects the province from N. E. to S. W., the Sierra de Alcaraz, and the Sierra de Segura. The chief rivers are the Segura, Mundo, Moratara, and Sangonera. Where it can be irrigated the soil is often of exuberant fertility. Lead, silver, sulphur, and nitre are found. Murcia was conquered by the Moors in 712, and made a dependency of the caliphate of Cordova. In 1239 Mohammed Ali or Hudiel made it an independent kingdom, but in the following year it was united to Castile. It was divided in 1833 into the provinces of Murcia and Albacete.—The modern Murcia comprises the southern part of the ancient province, bounded S. E. by the Mediterranean and drained by the river Segura and its tributaries; pop. in 1857, 387,-877. The S. and N. W. portions are mountainous, and much of the soil is sterile, but near the rivers there are some rich tracts of land whose prolific vegetation has acquired for them the name of *huertas* or gardens. In the S. E. are mines of lead and silver.—MURCIA, the capital of the ancient and modern province, stands on the N. bank of the Segura, 230 m. S. E. from Madrid; pop. 55,053. It is situated near the centre of the beautiful valley called Huerta de Murcia, and was formerly fortified. The cathedral tower is a very imposing structure, consisting of 3 quadrangular stages, each diminishing perimetrically and crowned with a dome. It is ascended to the top of the first stage by an inclined plane 320 paces in length, and of gradually increasing steepness. From the first stage a narrow stairway of 210 steps leads to the summit of the tower, whence the view over the Huerta is truly magnificent. The chief manufactures are earthenware, leather, coarse linen, silk thread, silks and baskets, mats, cordage, and sandals made of the esparto rush. Murcia was founded by the Moors, and during their supremacy was one of the 7 metropolitan cities of Spain. It was captured by the Spaniards under Don Alfonso in 1240, and plundered by the French under Sebastiani in 1810.

MURDER. The extreme difficulty of finding words which define precisely a complex idea, is well illustrated by the existing uncertainty, so far as mere definition goes, as to what constitutes murder; although the crime is almost, if not quite, the highest known to the law, and the necessity for determining whether the charge is properly made, or fully sustained, is frequently occurring. Originally the word meant only the secret killing of another. But the meaning of the word was extended more widely even in ancient times; and Coke gave a definition (3 Inst. 47) which Blackstone a century ago adopted, and which we think the best we know of. He says it is murder, "when a person of sound memory and discretion unlawfully killeth any reasonable creature in being, and under the king's peace, with malice aforethought, either express or implied." In previous articles on homicide and on manslaughter we have already had occasion to say that this element of "malice aforethought" is of the essence of murder. The greatest difficulty in determining whether a homicide be murder, is generally connected with the question of malice. It is quite certain that the malice need not be malice against the individual killed; for if one maliciously shoots at a person with intent to kill him, and missing him kills another, it is quite as much murder as if he had executed his intention. Nor indeed need it be directed against any person in particular. If one shoots into a crowd without knowing a person there, and kills one of them, it is murder; for such a criminal is regarded as having malice against the world, or, in the words of the old cases, he is *hostis humani generis.* Still there must be malice; for probably no kind or degree of mere carelessness or negligence would make a case of homicide one of murder. So if the death were caused by mere mistake, whether of law, of fact, or of the person, it would not be murder, unless it would have been murder if the law or fact or person had been what they were supposed to be. The principal exception to the necessity of proof of actual malice would seem to be where the death was caused without intention, but by the commission of and in attempting a felony. This distinction is so nice, that while, if one shooting at his neighbor's fowls with intent to destroy them shoots him by accident, this would not be murder, yet shooting them with intent to steal, and with the same result, would, it is said, be murder. Drunkenness has been considered in reference to manslaughter, and a somewhat similar rule is held as to murder; that is, intoxication, if it negatives the supposition of malice, would prevent the crime from being murder, unless it was a state of temporary insanity, purposely brought on that under it murder might be committed safely, in which case it would not be regarded as any excuse whatever.—Cases of compulsion have been somewhat considered; and it has been generally held that strict and actual compulsion was an excuse, but nothing less. If a captive on board a pirate were compelled to act with the crew in committing murder by threats of immediate death, this compulsion would undoubtedly be a sufficient excuse; but nothing less than a compulsion of this character would have this effect; as no command from a master, and no threat of a whipping, would be any excuse at all for a servant. But a jury, who are now judges of the law as well as the fact in criminal cases, if they were satisfied, from the evidence of command or threat, of the absence of all malice, either general or individual, would seldom render a verdict of murder. So if a crime be committed by a wife in presence of her husband, it is presumed by the law that she did the act under his coercion, and she is not herself guilty. But murder and treason are exceptions to this rule; and here it is said that no proof of actual constraint by the husband operates as an excuse. Here also we should say, that if this constraint, as a matter of fact, disproved malice, there could be no verdict of murder. It seems quite well settled, as a general rule, that if many are confederate in any unlawful act, and some one of them, in doing the act, commits a murder, all are guilty; as if several conspire to seize a vessel forcibly and run away with her, and one opposing them is killed in the conflict, all are guilty of murder, in law, who are present, aiding and abetting in the unlawful act. And yet here also, in practice, we apprehend that it would be difficult to obtain a verdict of murder against any one not shown to have been the actual killer, and even against him unless some malice and intent could be shown. It is quite certain that no consent or even request of the party killed is any excuse whatever. At common law, counselling of suicide, if it causes the suicide, is murder. So if two persons agree to commit suicide together and use means which take effect only on one, it is murder in the survivor, provided he were present when the act was committed, as otherwise he is only an accessory before the fact. In Massachusetts two persons were in adjoining cells, and one advised the other, who was to be hanged the next day, to "hang himself and disappoint the people;" and the party advised did thereupon kill himself, and the adviser was held by the court to be guilty of murder; but the jury brought in a verdict of not guilty. Now, however, we think that the crime would generally be regarded as manslaughter. If one, by working on the fears of another, or by mere unkind usage, put one into "a passion of grief or fear" whereof he or she, being perhaps at the time in feeble health, dies, this, says Hale, though murder or manslaughter in the sight of God, is not so at common law. Most later writers have adopted this view, which is said to be in accordance with the codes of France and of Scotland; while in some countries the law is held to be, as an English judge in a recent case declared it to be in England, that one is guilty if he cause death by force "applied either to the body or the mind." We consider Hale's view as being that of the common law, and of the prevailing law of the United States. It was a rule of the common law, that it was murder to procure the conviction and execution of an innocent person charged with a capital crime by perjury. Now, *however*, we are satisfied that both in England and in the United States such a crime would be punished only as an aggravated case of perjury, and not even as manslaughter.—The question has arisen, whether one can be indicted in a state or country for murder, if the criminal did actually in that state give the fatal blow, or fire the fatal shot, but the injured party went into another state or country and died there. The weight of authority, and we think of reason, is that no such indictment can be maintained. No country can punish a crime committed abroad, or partially abroad, unless by its own municipal provisions, applied to its own citizens. In accordance with this view, the statute of the United States against "murder on the high seas" has been held inapplicable to a case where a fatal blow was given with malice on the high seas, but the wounded person reached the shore and died on land.—An important question has exercised the courts, both of England and the United States, in respect to the evidence of murder and the burden of proof. It is a familiar principle that the burden of proof lies on the party who has a case to make out. But it is an equally familiar principle that this burden may shift in the course of the trial. Thus, A sues B on his promissory note, and the burden is on him to produce the note, and prove the handwriting; but if he does this, and the defendant says there was no consideration, or that he has paid the note, or rests on any other defence, the burden of proof shifts and is now on the defendant to prove the facts of his defence. Something like this was certainly the common law rule in a case of murder. If the government proved the death alleged, and that this death was caused by the prisoner, the burden of proof then shifted, and it lay on the prisoner to prove want of malice, or accident, or self-defence, or any other defence. That may still be, in words and in theory and to some extent, the law of the case, and has been so asserted in very interesting cases in the United States, although not without some dissent and some qualification. And we are satisfied that in cases of murder, the actual and practical rule whereby the fate of the prisoner is determined should be and is that the burden of proof remains on the government until they have proved their whole case, which includes the killing and the intent, or "the malice aforethought," without which there can be no murder. This evidence may undoubtedly be indirect or circumstantial, and must be so generally, because malice is a condition of mind and purpose. But it would not be enough in modern times to charge A with the murder of B, and rest the charge upon the mere proof that A killed B, unless there were something in the time, place, or circumstance of the killing, or of the conduct of the prisoner in reference to it, which brought home to a jury a belief that he was moved by malice aforethought.—In some of the states, although not generally, the crime of murder has been divided into degrees; and only murder in the first degree is punishable with death.—It should be added, that whenever a person is indicted and tried for murder, it is competent for the jury to bring in a verdict of manslaughter.

MURDOCK, James, D.D., an American clergyman, born in Westbrook, Conn., Feb. 16, 1776, died in Columbus, Miss., Aug. 10, 1856. He was graduated at Yale college in 1797, and became preceptor successively of the Hopkins grammar school in New Haven, and of the Oneida academy, now Hamilton college, in the state of New York. In Jan. 1801, he was admitted to the Congregational ministry, and in Feb. 1802, was settled over the Congregational parish in Princeton, Mass., where he remained 13 years. In 1815 he was appointed professor of ancient languages in the university of Vermont, and in 1819 accepted the Brown professorship of sacred rhetoric and ecclesiastical history in the theological seminary at Andover, Mass. In 1828 he removed to New Haven, and devoted the rest of his life to study. Ecclesiastical history, the oriental languages, and philosophy were his special objects of pursuit. His principal works are: a translation from the German of Münscher's "Elements of Dogmatic History" (12mo., New Haven, 1830); a translation of Mosheim's "Institutes of Ecclesiastical History," with copious notes (3 vols. 8vo., New York, 1832); an edition of Milman's "History of Christianity," with a preface and notes (8vo., New York, 1841); "Sketches of Modern Philosophy, especially among the Germans" (18mo., Hartford, 1842); a "Literal Translation of the whole New Testament from the Ancient Syriac Version," with a preface and marginal notes (8vo., New York, 1851); and a translation from the Latin of Mosheim's "Commentaries on the Affairs of the Christians before the time of Constantine the Great" (2 vols. 8vo., New York, 1852). He also contributed occasionally to periodicals, and published several sermons, one of which, on the atonement (1823), attracted great attention. He was an honorary member of the New York historical society, vice-president and president of the Connecticut academy of arts and sciences, vice-president of the philological society of Connecticut, and one of the founders of the American oriental society. He received the honorary degree of D.D. from Harvard university in the year 1819.

MURDOCK, James E., an American actor, born in Philadelphia in 1812. He made his début upon the stage in Philadelphia in 1829, and in 1838 first appeared at the Park theatre, New York, as Benedick in "Much Ado about Nothing." In 1840–'41 he was manager of the Chestnut street theatre, Philadelphia. He has since repeatedly appeared in the chief theatres of the United States, and is accounted one of the best genteel comedians on the American stage. He is also distinguished as an elocutionist, and, in conjunction with William Russell, has published a treatise entitled "Orthophony, or Culture of the Voice" (12mo., Boston).

MURE, William, a Scottish author, born at Caldwell, Ayrshire, July 9, 1799, died in London, April 1, 1860. He was educated at Westminster school and the university of Edinburgh, and completed his studies in Germany, where he imbibed a taste for critical inquiry in various departments of ancient history and literature. In 1829 appeared his first work, "Remarks on the Chronology of the Egyptian Dynasties," followed in 1832 by "A Dissertation on the Calendar of the Zodiac of Ancient Egypt." He subsequently spent much time in travel, and in 1842 published his "Journal of a Tour in Greece." His next and most important production was his "Critical History of the Language and Literature of Ancient Greece," which was left unfinished. Of the 5 volumes which have appeared, the 1st and 2d comprise a careful analysis of the Iliad and Odyssey, which he maintains were composed as an integral work and in their present form; the 3d treats of the lyric poets, and the 4th and 5th of the historians down to the time of Xenophon. He was engaged upon a 6th volume, to embrace the Attic drama, at the time of his death. He also prepared for the press 3 volumes of "Caldwell Papers," relating to the local history of the counties of Renfrew and Ayrshire. He was, after his father's death in 1831, the head of the Mures of Caldwell, a family dating from the 14th century; and he was for many years colonel commandant of the militia of Renfrewshire, which county he represented in parliament from 1846 to 1855, and in 1847–'8 held the office of lord rector of the university of Glasgow.

MUREX, a genus of univalve shells of the class *gasteropoda*, found in almost all salt water seas at depths varying from 25 to 60 fathoms. About 180 living species are known, and 160 fossil, chiefly belonging to the eocene formation. Some of the species are remarkable for their very long and slender beak, along which the canal is partly closed. The shells are ornamented with 8 or more longitudinal ridges, from which sometimes proceed rows of long pointed spines. The murices are particularly interesting from their having been the source of the famous Tyrian dye. It is stated that heaps of broken shells of the *M. trunculus* and caldron-shaped holes in the rocks may still be seen on the Phœnician shore; and on the coast of the Morea there is evidence that the *M. brandaris* was used for the same purpose of collecting from them the purple secretion of which the dye was composed. The ancients bruised the smaller shells in mortars, but took out the animal from the larger ones. Some of the *buccinum* family, as several species of the *purpura*, produce a fluid which gives a dull crimson dye; but these names as used by Pliny were applied to the shells now known as murices. An imitation of the purple dye prepared from uric acid, treated by nitric acid and combined with ammonia, was discovered by Proust in 1818, and afterward named by Liebig and Vöhler murexide. It is now produced from guano, and is used for the dyeing of foulard silks.

MURFREESBOROUGH, a city and the capital of Rutherford co., Tenn., situated near the centre of the state, on an elevated plain surrounded by the Cumberland mountains, 31 m. by the Nashville and Chattanooga railroad S. E. from Nashville; pop. in 1859 about 3,000. It is well built, chiefly with brick, is lighted with gas, and contains 6 churches (2 Baptist, 1 Christian, 1 Methodist, and 2 Presbyterian), 2 weekly newspaper offices, a foundery and machine shop, and one or two factories. It is the seat of Union university, founded by the Baptist education society in 1848, and having 300 students and a theological department; of Eaton female college, also under the care of the Baptists; of Soulé Methodist female college, founded in 1852, and having 150 pupils; of 2 high schools, and of a military institute. The town was established in 1811, and incorporated in 1817, and until 1827 was the capital of the state.

MURIATIC ACID. See Hydrochloric Acid.

MURILLO, Bartolomé Esteban, a Spanish painter, born in Seville, where he was baptized Jan. 1, 1618, died there, April 3, 1682. Displaying great aptitude for sketching, he was placed while a boy in the studio of his relative Juan de Castillo. The classical models then accessible to Sevillian painters being few and imperfect, he learned to study nature as it was about him; and his sketches of the ragged, sun-burnt children of Seville and its neighborhood afforded the material for those lively pictures of Spanish low life for which he subsequently became famous. About 1640 his master removed to Cadiz, and Murillo, obliged to depend upon his own resources, remained in his native town painting coarse and hastily executed pictures for the *feria*, or public fair, of Seville. By this sort of work he acquired probably that freedom of touch which characterizes his style; but the few remaining pictures by him of this period possess little merit, either in color or composition. About 1642 Pedro de Moya, a fellow pupil in the school of Castillo, and who had improved his style by studying with Vandyke, returned to Seville. Murillo, seeing the advantages his friend had derived from foreign travel, was filled with the desire to visit some of the older seats of art; and to procure the means he executed a number of pictures for the colonial market, which were speedily distributed by the traders throughout the Spanish American possessions, comprising the greater part, if not the whole, of the paintings by the artist since found in churches and monasteries of the new world, and the number and value of which have been greatly exaggerated. With the money thus acquired he went in 1643 to Madrid, was kindly received by Velasquez, then in the zenith of his fame, and by him introduced to the royal galleries of the capital and the Escurial, where during the next two years he copied the works of Titian, Rubens, Vandyke, Ribera, and Velasquez. Returning to Seville at the end of this time, contrary to the earnest advice of Velasquez that he should visit Rome, he entered upon his career as a painter, conscious of his own powers and ready for the execution of great works. His first important commission was from the friars of the convent of San Francisco, for the cloisters of which he painted 11 large pictures in the *frio*, or first of the 3 styles which are usually distinguished in his works. According to Ford, it was based on the works of Ribera and Caravaggio, and was dark, with a decided outline. His second manner was the *calido*, or warm, wherein his coloring was improved, while his drawing was still well defined and marked. His third style was the *vaporoso*, or misty, vaporous, and blending. (See Ford, "Handbook of Spain," p. 191.) The cloisters were burned in 1810, and the greater part of the pictures carried off by Marshal Soult, called by Mr. Stirling the "plunder-marshal-general," whose wholesale appropriation of the art treasures of Spain during his stay in the country, if indefensible on principle, was probably the means of preserving many choice pictures from neglect and the ravages of time. "In these works," says Sir Edmund Head, "Murillo seems to have burst upon Seville as a great painter whose existence was hardly suspected before." Commissions flowed in upon him, and in 1648 he was married to Doña Beatriz de Cabrera y Sotomayor, an Andalusian lady of wealth and rank. Soon after he adopted his *calido* or second style, some of the earliest and most felicitous examples of which were "Our Lady of the Conception," the "San Leandro" and "San Isidro," the "Nativity of the Virgin," and the "San Antonio de Padua." The last, esteemed one of his finest performances, now hangs in the cathedral of Seville, for which it was originally painted, but in 1833 was, according to Ford, "cruelly retouched." In 1658 Murillo, in conjunction with Valdes Leal and the younger Herrera, undertook the establishment of a public school of art in Seville, which was first opened in 1660, and of which he assumed the direction during that year. To this period may be ascribed his 4 large semi-circular pictures, executed for the church of Santa Maria la Blanca in Seville, and carried by Soult to Paris. Two of these, representing the legend of the dream of the Roman patrician which led to the building of Sta. Maria Maggiore in Rome under Pope Liberius, were subsequently restored to Spain, and now hang in the academy of San Fernando in Madrid. They indicate the commencement of the *vaporoso* style, and are magnificent specimens of the artist's powers. Between 1660 and 1674 was executed for the *caridad*, an almshouse outside the walls of Seville, a celebrated series of pictures, the commission for which was given to Murillo by his personal friend and patron, Miguel de Mañava Vicentelo de Lara, by whom the edifice was rebuilt. Five of these, "Abraham receiving the three Angels," the "Return of the Prodigal Son," the "Healing of the Cripple," "St. Peter released from Prison by the Angel," and

"Santa Isabel (St. Elizabeth) of Hungary," were carried off by Soult. The first two were sold to the duke of Sutherland; the 3d was bought by Mr. Tomline, an English collector, for 160,000 francs; the 4th is in Russia; and the 5th, which the marshal, it is said, offered as a bribe to Napoleon to overlook his own stealings, is now, with the two pictures from Sta. Maria la Blanca, in the academy of Seville. It is called *El tiñoso*, from the boy with the scald-head to whom the saint is ministering, and, apart from the almost divine beauty of Sta. Isabel, affords admirable specimens of Murillo's facility in painting the beggar boys and vagabonds of Seville. Of these accessories to his pictures Ford says: "The beggars are beyond price; none could represent them and Franciscans like Murillo, and simply because he painted them the most, and drew only what he saw." Of the original series still remaining in the *caridad*, the chief are "Moses striking the Rock," "The Charity of San Juan de Dios," and "The Miracle of the Loaves and Fishes," works conceived with all the artist's strength in the maturity of his powers. Subsequent to 1675 he painted a series of about 20 pictures for the convent of the Capuchins in Seville, of which, thanks to the foresight of the monks in sending their collection temporarily to Cadiz during the occupation of Seville by the French, 17 are now preserved in the museum of the latter city. One of the best of these, "The Charity of St. Thomas of Villanueva," presents many striking studies of street nature, and was called by the artist *su lienzo*, "his own picture." Another celebrated picture formerly in the chapel of the monastery, representing the Virgin and child, is said to have been painted on a *servilleta*, whence it was called the "Virgin of the Napkin." He subsequently executed fine series of pictures for the *hospital de los venerables* and the Augustinian convent of Seville, and at this, as at other periods of his life, a multitude of miscellaneous works, generally of a religious character. Preëminent among them were those devoted to the illustration of the immaculate conception of the Virgin, a dogma promulgated in Spain about the time of Murillo's birth, and which has been called the "crowning and protecting mystery" of the Spanish people. In depicting the "woman clothed with the sun, and the moon under her feet, and upon her head a crown of stars," Murillo was unapproachable; and from the frequency and fondness with which he represented the subject, he was called *el pintor de las concepciones*, "the painter of the conceptions." A memorable example of this style of picture is the "Immaculate Conception," purchased at the sale of Marshal Soult's collection in 1852 by the French government for 635,000 francs, and now deposited in the Louvre, in which the Virgin appears in a state of ecstatic beatitude, borne aloft in a golden æther to heaven by a multitude of cherubs, who are painted with inimitable sweetness. Several similar works, but with fewer accessories, attributed to Murillo, are owned in the United States. His remaining works are distributed among the royal and private galleries of Europe. The Louvre contains a considerable number, the Pinakothek in Munich 2 or 3 admirable specimens of his beggar boys, and Dulwich gallery a very rich collection, including the celebrated "Flower Girl." Such, however, has been the mania of late years for his works, that his name has been applied indiscriminately to productions utterly unworthy of his pencil, and many of the pictures of peasants and beggars attributed to him are supposed to be by his followers or pupils. A short time before his death Murillo went to Cadiz to paint the "Espousals of St. Catharine" over the high altar in the Capuchin church of that city, and while engaged upon the work stumbled and fell from the scaffolding, receiving an injury which proved fatal. He was buried in the church of Santa Cruz in Seville, before a picture of the "Descent from the Cross" by Pedro Campana, which he had greatly admired in his life. The French in 1810 levelled the church to the ground, and "cast out the ashes of Murillo to the winds."—Murillo was essentially a painter of religious subjects, but of that class of religious subjects in which female or infantile purity and beauty form the controlling element. Without trick or deception, he seems to have possessed the power of adapting the higher subjects of art to the commonest understandings, and succeeded in at once captivating the learned and unlearned. Hence the universal popularity of his works throughout Europe, notwithstanding Ruskin places him among the "base" artists. As a colorist he was preëminent. Compared with his great countryman and contemporary, Velasquez, he was more artless and tender, but less masculine and intellectual. As a landscape painter he occupies a respectable position, although his scenery is too often conventional and merely accessory. He painted a few good portraits.—See "Ford's Handbook of Spain" (3d ed., 1855); Stirling's "Annals of the Artists of Spain;" Head's "Handbook of the Spanish School;" and Cunningham's "Life of Wilkie."

MURNER, THOMAS, a German satirist and opponent of the reformation, born in Strasbourg, Dec. 24, 1475, died about 1536. He studied at the principal universities of Europe, devoting himself particularly to theology and philosophy, and early gained a reputation for ability, marred however by a want of earnestness and a quarrelsome disposition. He lost a place in the conventual Latin school of Strasbourg by his invective against Wimpfeling, and led afterward an unsteady life, preaching for some time at Frankfort-on-the-Main and other places, but incurring generally the displeasure of his congregation by the coarse personalities of his sermons. He was successively expelled from Freiburg, Treves, and Venice. He seems to have resumed his functions in the conventual school of Strasbourg in 1519, and became one of the most virulent opponents of the reformation. In 1523 he repaired to England in compliance with an invitation from Henry VIII., but troubles in his convent compelled him to return. Some of his writings against the reformation had already been burned by order of the diet of Worms; and in order to elude the vigilance of the authorities he established a press of his own, which however was destroyed by a mob, together with his house, and he was compelled to flee to Switzerland, whence he was in time likewise expelled. The latter part of his history is not known, although he is supposed to have lived in misery and to have died in Heidelberg. In 1506 he had been crowned as poet laureate by the emperor Maximilian; and his *Narrenbeschwörung* (Strasbourg, 1512), of which his *Der Schelmen Zunft* (Frankfort, 1512) may be regarded as a continuation, is one of the most remarkable imitations of Sebastian Brant's celebrated satirical poem entitled *Narrenschiff*. He wrote *Chartiludium logice*, &c. (Cracow, 1507), and other Latin works; prepared a German version of Virgil and other translations; and was also regarded as the editor of *Eulenspiegel*. But he is chiefly remembered by his writings against Luther and the reformation. His most celebrated satirical work is entitled *Von dem grossen Lutherischen Narren* (Strasbourg, 1522; new ed., Zürich, 1848).

MURPHY, Arthur, a British dramatist and miscellaneous author, born in Clooniquin, near Elphin, in the county of Roscommon, Ireland, Dec. 27, 1727, died in Sept. 1805. He was educated at the Roman Catholic college of St. Omer, spent some years in a banking house in London, and in 1756 was admitted to Lincoln's Inn. His first literary undertaking was the publication of a weekly paper entitled the "Gray's Inn Journal," which he conducted for two years. In 1758 appeared his first dramatic performance, "The Upholsterer," a farce, directed against politicians, which proved very successful, followed by "The Orphan of China," "The Way to Keep Him," "All in the Wrong," "The Citizen," "The Old Maid," &c. In 1762 he was called to the bar, but at the end of 15 years quitted his profession in disgust, and devoted the remainder of his life to literary pursuits. In 1786 appeared an edition of his works in 7 vols. 8vo., containing, in addition to the dramatic pieces above mentioned, his "Three Weeks after Marriage," "Zenobia," "The Grecian Daughter," &c. In 1792 he published an indifferent essay on the life and genius of Dr. Johnson, followed in 1793 by a translation of Tacitus in 4 vols. 4to., dedicated to Edmund Burke, and by a life of Garrick. At various times in his life he engaged in political controversies, and edited journals opposing Mr. Fox, the first Lord Holland, and Wilkes's "North Briton." His plays are his best performances, and some of them, including "The Way to Keep Him" and "Three Weeks after Marriage," still retain possession of the stage.

MURRAIN (Gr. μαραινω, to waste, weaken; Lat. *morior*, to die), a malignant epidemic among cattle. It has been known from the most remote periods, and has been described by ancient authors. It has prevailed at different periods in almost all countries, often producing the most terrible devastations. Like all epidemic diseases, its character and types have materially varied at different periods, the epidemics of recent times being much less virulent than those which prevailed during the last century. The earliest record which we have of murrain is contained in the account of the destruction of the Egyptian cattle (Exod. ix. 2–6): "If thou refuse to let them go, and wilt hold them still, behold the hand of the Lord is upon thy cattle which is in the field; . . . . there shall be a very grievous murrain. . . . . To-morrow the Lord shall do this thing in the land. And the Lord did that thing on the morrow, and all the cattle of Egypt died." Visitations of plague or murrain are mentioned by Homer, Hippocrates, Plutarch, Livy, and Virgil. The last of these writers gives a detailed description of the murrain as it desolated the Roman farms. Its character as described by Virgil does not differ materially from the accounts of the disease which has visited various portions of continental Europe in modern times. It was a highly inflammatory fever, and was accompanied with tumors, carbuncles, ulcers, and purulent deposits throughout the whole body. In the year 376 a murrain broke out among the cattle over the whole of Europe; this terrible epidemic has been described by Cardinal Baronius. In the 9th century a murrain destroyed all the cattle in the greater portion of Charlemagne's dominions. At two different periods of the 16th century murrain ravaged the Venetian states. In the 17th century great numbers of cattle were destroyed by this disease in most of the provinces of France; and again in the 18th century, various and repeated visitations of murrain spread havoc and terror throughout Great Britain, and in many countries of continental Europe. These continued visitations eventually led to the foundation of veterinary colleges, and to proper instruction in the veterinary art. In 1745, the disease having appeared in France and Germany, it passed into Holland, where it destroyed more than 200,000 cattle. From Holland the disease crossed over to Great Britain, where it created incredible devastations during a period of 12 years. In the 3d year of this period, according to the calculations of the public commissioners, 240,000 cattle were directly or indirectly destroyed by the pestilence. Since the latter part of the 18th century the visitations of this epidemic have been comparatively few, and the disease appears to have lost much of its virulence. The alterations in its character, and the decrease in its devastations, are undoubtedly due in a great measure to the preventive as well as curative treatment which has of late years been pursued.—The accounts afforded us by the historians of these early malignant epidemics, although mostly written by medical men, are very vague and unsatisfactory. Particularly is this the case with regard to the symptoms of the disease which they describe. Two Italian physicians, Rammazini and Lancisi, have handed down very intelligent and consistent accounts of the epidemics as they prevailed in their own country in the early part of the 18th century. The epidemics of the middle of this century produced many written descriptions of the affection, among which stands preëminent that of Sauvages, the celebrated professor of medicine at Montpellier. The British visitation of the malady in 1757 elicited an excellent work from the pen of Dr. Layard, a physician of London, which was translated into several languages. According to the accounts of the Italian physicians, the disease was ushered in with shivering, followed by extreme heat, great thirst, difficulty of breathing, total loss of appetite and rumination, together with extreme debility; a thick, fetid, mucous discharge from the mouth and nostrils soon succeeded, as also frequent bloody and fetid digestions from the bowels. About the 5th day a pustular eruption appeared in the mouth, which covered the tongue and the pharynx. Abscesses, loss of the hair, and a carious condition of the bones soon followed. The animal died generally between the 5th and the 9th day. On examination after death, hydatids were found in the brains and lungs, which contained a most infectious gas. Ulcers were found at the root of the tongue, and the intestines were in a gangrenous condition. The third stomach always contained a hard, black, infectious mass, which adhered closely to the living membrane, and could scarcely be separated from it. Lancisi remarks that he found no medical treatment of any avail, although the use of setons and the actual cautery were sometimes beneficial. In this statement Rammazini fully concurs, and says that the only cattle that did escape destruction were those in which either setons, cautery, or natural tumors and ulcerations had produced a copious discharge of thick, purulent, and fetid matter. Dr. Layard describes murrain as commencing with a difficulty of swallowing, itching of the ears, shaking of the head, with excessive weakness and staggering gait, which occasioned a continued desire to lie down; a sanious fetid discharge invariably appeared from the nostrils and eyes; the cough was frequent and urgent, and the febrile symptoms well marked. After two days there was a constant scouring of green fetid dung, which tainted every thing around; even the breath, perspiration, and urine became highly fetid. Little tumors or boils were very commonly felt under the skin; and if about the 7th or 9th day these eruptions became larger and boils or buboes appeared with a lessened discharge of fæces, they proved critical, and the animal often recovered; but if on the contrary the alvine discharges continued, and the breath became cold, and the mouth dark in color, he informs us that death invariably followed. Sauvages describes the murrain as showing itself by cold shivering, nose excoriated with an acrid discharge from it, and by purging after the first two days, previous to which however there was often costiveness. Great tenderness about the spine and withers was also a characteristic together with emphysema or a blowing up of the skin by air discharged underneath it. Dissections of those that died of this disease, according to Sauvages, showed marks of great inflammation and of a great putrid tendency, but the solid parts seldom ran into gangrene. The paunch was usually filled with undigested matter, and the gall bladder was also commonly distended with acrid, thick, brownish bile. Goelich, who also dissected these subjects, describes the gall as particularly profuse and intolerably fetid. He represents the entire alimentary canal as excoriated. So also Lancisi, contrary to Sauvages, found the viscera of the chest and belly in some cases sphacelated and gangrenous. Gazole describes the murrain as accompanied by pustulous sores; and so great was the putrid tendency, that even the milk before it dried up, which it usually did before the 4th day, became fetid.—As to the treatment of this disease, all authors recommend bleeding in the early stages; afterward sedatives and tonics according to circumstances; the animals infected to be at once separated from the healthy, and to be placed in open airy sheds. Dr. Lancisi advised the body to be washed in aromatic herbs, and various applications to be made to the sloughing pustules. When recovery takes place, it is usually a very slow process. All these writers speak of the importance of the preventive treatment. This consists in a careful supervision of the cattle several times during the day, the immediate removal of the animal at the very onset of the disease, the fumigation and cleansing of the buildings, and the immediate burial of all dead bodies with the hides unremoved.—Such is a concise account of the history and symptoms of this malignant epidemic, as it has been transmitted to us by various writers. During the present century the epidemics which have occasionally appeared in the various countries of Europe, have been comparatively mild, and have yielded much more readily to treatment. The murrain of the present day is usually classed by writers under diseases of the respiratory system, inasmuch as this portion of the frame is first attacked. But it very soon assumes such a low typhoid character, its virulence expending itself upon every portion of the body, particularly upon the abdominal viscera, that it would be more exact to consider it as essentially an abdominal affection. It appears much more frequently in woody, marshy districts, among undrained lands, and affects chiefly cattle that have been exposed and half starved. It is to be distinguished by some or the greater portion of the following symptoms: a frequent and painful cough, remaining in some cases for several days without any other marked symptom; heaving of the flanks; a small, hard, frequent, and often irregular pulse; the mouth hot; the evacuations from the bowels at first hard and black, and then very liquid, black, and exceedingly offensive; extreme tenderness along the spine, and particularly over the loins. There is a bloody brownish discharge from the nostrils and mouth, great swelling of the eyes, constant grinding of the teeth, spasmodic contractions about the nostrils, and convulsive movements of the head. As the disease progresses, the eyes become dull, the pulse more feeble, the respiration more hurried, and the fæces are bloody and horribly fetid. Even the breath and perspiration become offensive, and the animal staggers as he attempts to walk. During the latter stages small tumors or boils appear on various portions of the body, which go on to suppuration, during the process of which the animal most frequently dies. The treatment of this, as of all virulent epidemics, has proved most unsatisfactory. Bleeding in the early stages may sometimes prove beneficial, if the febrile symptoms are well marked. Tonics, however, are called for early in the disease, and should be administered freely. The peculiar fetid diarrhœa must be met with astringents. The chloride of lime has been found to be the best external application for the pustular and sloughing boils. Hurtrel d'Arboval, an eminent French practitioner, advises the opening of the tumors and the cauterization of them with lunar caustic, and the administration internally of bark and sulphuric acid. Inoculation for this disease has been practised, but with very uncertain results. The preventive treatment must consist in first separating the infected from the healthy, and precluding their future intercourse. The unhealthy districts must be put under strict quarantine. The houses in which the affected may have been, and all the appointments about them, must be disinfected. The bodies of the animals who die from the disease should be buried deeply, and their skins should be buried with them.—As to the contagiousness of this disease, there have been, as there always will be with regard to all epidemics, a variety of opinions. If we can judge from the propagation of murrain in certain localities in Europe, we should consider that it was eminently contagious. In our own country we have thus far been happily ignorant of this terrible plague. We consider the disease in question as essentially different in its nature from the affection which has recently been introduced from Holland into Massachusetts under the name of pleuro-pneumonia. (See PLEURO-PNEUMONIA.)—The term murrain has also been applied to a virulent disease of the skin which attacks hogs, and which is somewhat allied to leprosy.

MURRAY, a N. W. co. of Ga., bordering on Tenn., bounded W. by the Connasauga river and drained by its branches; area, 320 sq., m.; pop. in 1859, 6,671, of whom 1,420 were slaves. The surface is elevated, and the soil generally fertile. Gold, silver, lead, and zinc are found. The county has been divided since the U. S. census of 1850. Capital, Spring Place.

MURRAY, a river of Australia, which rises in the Warragong mountains, in lat. 36° 20′ S., long. 148° 15′ E. Its course is very tortuous, the curvatures being short, abrupt, and almost incessant. After descending from the highlands, it flows nearly westward to long. 144° 25′ E., then takes a N. W. direction to Mt. Lookout, where again turning it proceeds to Elbow, in lat. 34° S., long. 139° 46′ E., and there bending suddenly runs S. S. W. to Lake Victoria, into which it falls at Wellington in lat. 35° 30′ S. This river and its tributaries drain an area of about 500,000 sq. m. Its length is about 900 m., and its average breadth from 100 to 150 yards. It overflows its banks periodically, and sometimes rises 30 or 40 feet above its ordinary level. During this season it is navigable to within 90 miles of its source, and then steamers and barges ply regularly between Wellington, Albury, and the intermediate towns. Its principal affluents are the Goulburn, Campaspe, Murrumbidgee (with the Lachlan), and Darling. Lake Victoria, which connects it with the sea, is about 50 m. long and 40 m. broad, but in general very shallow. The entrance to it from the sea not being navigable, a tramway has been constructed between Goolwa and Port Elliot, which is worked in connection with the river steamers.

MURRAY, ALEXANDER, a commodore in the U. S. navy, born at Chestertown, Md., in 1755, died while in command of the navy yard at Philadelphia, Oct. 6, 1821. In 1776 he was appointed a lieutenant in the continental navy, which then had but a nominal existence; and there being no employment for him afloat, he volunteered for the army, and served with credit through the campaigns of 1776–'7 as lieutenant and captain in the 1st Maryland regiment, participating in the battles of White Plains and Flatbush. About the time of the evacuation of New York by the British forces, he was seriously injured by the bursting of a piece of ordnance in a battery at which he was stationed. At the close of the campaign of 1777 he retired from the army, and was appointed by the marine committee to the command of a letter of marque, in which he was captured by a British squadron and carried into New York. He was soon exchanged, and served as 1st lieutenant in the Trumbull, 28, Capt. James Nicholson, distinguishing himself highly in the gallant defence made by that ship against the Iris and Gen. Monk off the Delaware. In 1798 he was promoted to the rank of captain, and served during the "French disturbance" very actively and usefully in the West Indies, at first in command of the Montezuma, 20, and afterward of the Constellation frigate. In 1802, at the commencement of the war with Tripoli, he again commanded the Constellation in the Mediterranean; and an attack which he made with this ship upon a flotilla of 17 Tripolitan gun boats was the first affair of this war. The gun boats took refuge in shore among the rocks, and it not being prudent to send the boats of a single frigate to attempt their capture, Capt. Murray hauled off. The subsequent services of Commodore Murray were principally upon shore stations, and mostly at Philadelphia. At the time of his death he was senior officer of the navy.

MURRAY, Alexander, D.D., a Scottish clergyman, born in Dunkitterick, Kirkcudbrightshire, Oct. 22, 1775, died in Edinburgh, April 15, 1813. He was the son of a shepherd, was placed at school by his uncle in 1784, and after some time was able to devote part of each year to teaching, giving the rest to study. He made himself acquainted with French, Latin, Greek, Hebrew, Anglo-Saxon, Welsh, and Arabic. In 1794 the Rev. Dr. Baird of Edinburgh procured him admission to the university, where after two years a bursary was conferred on him. He now began to study for the church, and in 1806 was ordained and appointed assistant to Dr. Muirhead, minister of Urr in Kirkcudbrightshire, whom he succeeded as pastor in 1808. In 1811 he translated a letter in Geez or old Ethiopic, addressed to the king by the sovereign of Tigre in Abyssinia; and in the following year he was elected to the chair of oriental languages in the university of Edinburgh. His most important works are: "Outlines of Oriental Philology" (Edinburgh, 1812), and "History of the European Languages, or Researches into the Affinities of the Teutonic, Greek, Celtic, Sclavonic, and Indian Nations" (1813). He also edited Bruce's "Travels" for Constable, the Edinburgh publisher, and contributed some philological papers to the "Edinburgh Review."

MURRAY, James Stuart, earl of, regent of Scotland, born about 1533, killed at Linlithgow, Jan. 23, 1570. He was an illegitimate son of James V. and Lady Margaret, daughter of John, 4th Lord Erskine, and in the 3d year of his age was appointed by his father prior of St. Andrew's. He afterward acquired the priory of Pittenweem, and that of Mâcon in France, *in commendam*, with a dispensation to hold three benefices. In 1548, on the invasion of Scotland by Lords Grey de Wilton and Clinton, the one by land, the other by sea, the young prior of St. Andrew's repelled a descent made by the latter upon the coasts of Fife, and drove back the invaders to their ships with great slaughter. In the same year he accompanied his sister, Queen Mary, to the court of France. In 1557 he was one of the commissioners sent from Scotland to witness the ceremony of marriage between Mary and the dauphin of France, afterward Francis II., and soon after solicited from the former the earldom of Murray, but was refused. In the contest between the queen regent and the lords of the congregation, he sided alternately with both parties, but finally joined the latter; and when in 1559 the congregation resolved to take the government into their own hands, he was one of the council appointed for civil affairs. Soon after the death of the queen regent in June, 1560, he became one of the lords of the articles, and on the death of Francis II. was commissioned to proceed to France and invite Mary to Scotland. On her return he became her confidant, adviser, and prime minister, protected her in the exercise of her religion, obtained from her a proclamation favorable to the reformers, cleared the border of the freebooters, and ruled the country with judgment and ability. He was rewarded with the title of earl of Mar, and married soon after Agnes Keith, daughter of the earl marischal. The entertainments given by Mary in honor of the occasion were so splendid, that Knox read Lord James a lecture, in which he said: "Unto this day the kirk of God hath received comfort by you and by your labors, in the which if hereafter ye be found fainter than before, it will be said your wife hath changed your nature." Lord Erskine claiming the earldom of Mar as his peculiar right, Lord James resigned it and received instead the earldom of Murray, and shortly after defeated at Corrichie the earl of Huntley, an unsuccessful competitor for power and popularity. Although governing Scotland judiciously and with undisputed authority, he was too lukewarm a Protestant for the extreme reformers, who lamented the protection he afforded to the queen in the use of the mass, and particularly his defence of her and her ladies in what Knox called "the superfluities of their clothes." Between Knox and Murray a coolness sprung up in consequence, which continued a year and a half; but they were brought together again by their mutual opposition to the marriage of Darnley and Queen Mary. Murray had endeavored to prevent that marriage, and finally resorted to arms; but being pursued by his sister at the head of a superior force, he was compelled to fly to England. On the murder of Rizzio, however, he was recalled, and apparently reconciled to the queen. It is not certain whether or not he was accessory to the murder of Darnley. He left Edinburgh the day before, and was also absent from Scotland during the trial of Bothwell and his subsequent marriage with Mary. After the dethronement of the queen and her confinement in Lochleven castle, Murray was appointed regent of Scotland, Aug. 22, 1567. In this situation he acted with vigor and discretion, and kept the country in a state of tranquillity. On the escape of the queen, he refused to resign his power, defeated her and her adherents at Langside, March 13, 1568, and followed up the victory by destroying the strongholds of her friends, and more firmly establishing the government. When Mary was tried at York for complicity in the murder of

Darnley, Murray bore the most unqualified testimony against his unhappy sister. In passing through the streets of Linlithgow, he was shot through the body by a bullet fired from a window by James Hamilton of Bothwelhaugh, and died the same night. Bothwelhaugh's conduct has generally been ascribed to revenge for a personal injury, but there is reason for believing that he acted as the executioner of a doom pronounced on Murray by his enemies in secret conclave. The following passage in a letter from Queen Mary to Archbishop Beaton, published by Prince Labanoff de Rostoff in his *Lettres, instructions et mémoires de Marie Stuart* (London, 1845), has been cited in illustration of this affair: "That which Bothwelhaugh hath done hath been without my command, but I feel under obligation to him, and all the more so that I was not in the plot. I wait for the accounts which ought to be rendered of my dowry that I may arrange my establishment, in the which I shall not forget the pension to this Bothwelhaugh." Whatever may be thought of the means which Murray used to secure the supreme power, he was unquestionably in the exercise of it one of the best and ablest rulers that Scotland ever possessed, and is known in Scottish history as "the good regent."

MURRAY, John, an American clergyman, born in Alton, Hampshire, England, Dec. 10, 1741, died in Boston, Mass., Sept. 3, 1815. He was the son of pious parents, who brought him up with great strictness, and with whom in his 11th year he removed to Cork, Ireland. Under the influence of Wesley and Whitefield he became at a comparatively early age a convert to Methodism, and an occasional preacher in Wesley's connection. About 1760 he returned to England, and a few years later adopted the doctrines of Universalism promulgated by James Kelly, for which he was excommunicated at Whitefield's tabernacle in London. In 1770 he emigrated to the United States, and entered at once upon the career of a public preacher. New York and New Jersey were the first scenes of his labors, and subsequently he preached in Newport, R. I., Boston, Portsmouth, N. H., and other places in New England, in some of which his peculiar doctrines subjected him to opposition, and occasionally to open violence. At Gloucester, Mass., where he took up his residence in the latter part of 1774, upon the representations of certain people that he was an emissary of the British government in disguise, a vote was passed ordering him forthwith to depart; but through the exertions of his friends he was enabled to remain and preach. In the spring of 1775 he was appointed chaplain of the 3 regiments of the Rhode Island line encamped before Boston, with several of whose officers, including Greene and Varnum, he had been on terms of intimacy. The rest of the chaplains united in petitioning Washington to remove Murray from his office, but without effect, his appointment being confirmed in general orders. His connection with the army was soon after terminated by a severe illness, and he returned to Gloucester, where he was established over a society of Universalists. In 1783 he became plaintiff in an action brought to recover property belonging to persons of his denomination, which had been appropriated to the expenses of the original parish of Gloucester, on the ground that the Universalists were not a society legally authorized and vested with civil and corporate powers. The decision of the court in his favor established an important principle in the constitution of religious societies. He participated in the proceedings of the first Universalist convention, which met at Oxford, Mass., in 1785, and adopted the name of Independent Christian Universalists as their denominational title; and subsequently for a number of years he was a delegate to the general convention of the Universalists. In 1788 he made a brief visit to England, and in 1793 was installed over a society in Boston, where he passed the remainder of his life. In 1809 he suffered an attack of paralysis which incapacitated him from further active labor in the ministry. From his activity in disseminating his denominational opinions, Murray is considered the father of Universalism in America. His doctrines, however, differed essentially from those now recognized by Universalists. "He believed that the Creator, enrobed in humanity, descended to the earth, and thus became the Saviour of sinners; that he was exhibited as a holy spirit of consolation, who took of the things of Jesus, and showed them to the world; that as man, composed of body, soul, and spirit, is but one man, so the Father, Son, and Holy Spirit are one God." (Whittemore's "Modern History of Universalism.") As a preacher he was distinguished by eloquence and earnestness. He published 3 volumes of letters and sketches of sermons, and wrote an autobiography, of which the 8th edition, with additions, was published in 1860 (12mo., Boston).

MURRAY, John, a Scottish physician, chemist, and geologist, born in Edinburgh in 1778, died there, June 22, 1820. He had been a pupil of Dr. Joseph Black, but commenced his career as an apothecary in his native city. He afterward delivered a course of lectures on chemistry, and another on materia medica and pharmacy. In geology he was a zealous Neptunian, and in reply to Playfair's "Illustrations of the Huttonian Theory of the Earth" (1802), published his "Comparative View of the Huttonian and Neptunian Theories." The most important of his other works are: "System of Chemistry," "Elements of Chemistry," and "System of Materia Medica and Pharmacy."

MURRAY, John, an English publisher, born in London, Nov. 27, 1778, died June 27, 1843. He was of Scottish descent, and his father, whose name was MacMurray, established himself in 1768 as a bookseller in Fleet street, London. After a good education acquired at a number of schools, at one of which he lost the sight of an eye by an accident, he was left in his 15th year by his father's death to conduct the business, in which he was assisted by Mr. Highley the shopman, whom he subsequently took into partnership. In 1803 he terminated this connection, and, entering a wider sphere of business, was thenceforth known as one of the most enterprising and liberal publishers of London. By coming forward to the assistance of a number of young men who had become involved in some pecuniary loss in conducting a periodical called the "Miniature," he secured several influential friends, through whom he became known to Mr. Canning. With the latter he matured in 1807 a project for the establishment of the "Quarterly Review" as a means of counteracting the influence of the whig "Edinburgh Review;" and securing the coöperation of George Ellis, the Hebers, Barrow, Gifford, and others, he commenced in 1809 the publication of the new periodical, which under the editorial supervision of Gifford soon attained a circulation of 12,000 copies. The "Quarterly," after a successful career of more than half a century, is still the property of the publishing house of John Murray. In 1810 Mr. Murray made the acquaintance of Lord Byron, to whom he paid £600 for the first two cantos of "Childe Harold," and whose entire works he subsequently published. Of his generosity and consideration toward the poet, both during and after the life of the latter, many anecdotes are related; and Byron's correspondence with him, published in Moore's "Life of Byron," affords an evidence of the friendly relations existing between them. In 1812 he removed to Albemarle street, where the business is still carried on by his son and successor, John Murray, and where a long line of literary celebrities, including Scott, Byron, Campbell, W. Spencer, Bishop Heber, the elder Disraeli, Hallam, Mme. de Staël, Crabbe, Southey, Washington Irving, and Lockhart, were wont to assemble at the hospitable table of the publisher, rendering the locality a classic spot. Of the numerous important works issuing from the press of Murray, it may suffice to mention the voyages and travels of Mungo Park, Belzoni, Parry, Franklin, Denham, Clapperton, and Layard; the series of the "Family Library;" the histories of Hallam, Lord Mahon, Grote, Ranke, Sir Gardiner Wilkinson, and Mrs. Markham; the "Sketch Book," "Tales of a Traveller," "Life of Columbus," and other works by Washington Irving; the "Domestic Cookery," of which 300,000 copies were published; the despatches of the duke of Wellington; the dictionaries of William Smith; an elaborate series of handbooks of travel; and the works of Crabbe, Heber, Lockhart, Milman, Head, Gleig, Kugler, Lord Campbell, Leake, Borrow, Davy, Rawlinson, Mrs. Somerville, Lyell, Murchison, &c. In 1826 he was persuaded into establishing a daily journal called the "Representative," which proved a failure; but in general his good judgment and tact as a business man rendered his enterprises successful, and the publications emanating from his house were for the most part books of merit, his imprint being one of their best recommendations. His liberality to authors was a distinguishing trait in his character, and he sometimes made heavy pecuniary sacrifices to gratify others, as in the case of the autobiography of Lord Byron, which he surrendered to Moore on the representation that the publication of it might injure the reputation of the living as well as the dead.

MURRAY, Lindley, an English grammarian, born in Swatara, Lancaster co., Penn., in 1745, died near York, England, Feb. 16, 1826. He received his primary education in Philadelphia, in the academy of the society of Friends; and after the removal of his father to New York in 1753, he was placed for a time in school, and then entered a counting house, being destined for the mercantile profession. Having received a severe chastisement, he privately left his father's house, went to Burlington, N. J., and in a seminary in that place acquired a strong love of study. On returning to New York he continued his classical studies, and also entered a law office, in which John Jay was a fellow student. About the age of 21 he was admitted to the bar, and his practice soon became extensive. When the revolutionary war broke out, he retired to the country on account of his health, and there remained 4 years. But the want of pecuniary means compelling him to return, he engaged in mercantile pursuits, and by the close of the war his fortune had become so ample that he was enabled to retire from business. Impaired health soon induced him to go to England with his family. He had purposed to remain only two years; but his physical infirmities and the local attachments he formed led him to become a permanent resident. He purchased an estate at Holdgate, about a mile from York, and occupied himself chiefly with literary pursuits. In 1787 his first work, "The Power of Religion on the Mind," was published anonymously, and has passed through 17 editions. His "Grammar of the English Language," first issued in 1795, and enlarged and improved in successive editions, for many years superseded all others, and has become the basis of most of those since published. Two years after, he published "English Exercises," and a "Key" designed to accompany the grammar; and subsequently an "English Reader," an "Introduction to the English reader," and an "English Spelling Book." He also published French reading books of a character similar to his English ones. His last publication was a selection from Horne's "Commentary on the Psalms," and the "Duty and Benefits of Reading the Scriptures." His works have been very popular both in England and America, and were very lucrative. His autobiography, finished in 1809, was published posthumously.

MURRAY, Nicholas, D.D., an American clergyman, born in Ireland, of Roman Catholic parents, in Dec. 1803. In 1818 he came to America, and became an apprentice in the printing establishment of Harper and brothers. Shortly after, having become a Protestant, he entered upon a course of study for the ministry, was graduated at Williams college in 1826, studied theology at Princeton, and in 1829 became pastor of the Presbyterian church in Wilkesbarre, Penn. In 1834 he was settled over the first Presbyterian church at Elizabethtown, N. J., where he has since remained. In 1849 he was elected moderator of the Presbyterian general assembly. Dr. Murray is best known by his "Letters to the Right Rev. John Hughes, Roman Catholic Bishop of New York" (New York, 1848; new ed. enlarged, 1855), under the signature of Kirwan. He has also published "Notes, Historical and Biographical, concerning Elizabethtown, N. J." (Elizabethtown, 1844); "Romanism at Home" (1852); "Men and Things as I saw them in Europe" (1853); "Parish and other Pencillings" (1854); and "The Happy Home" (1859).

MURRAY, Patrick, 5th Baron Elibank, a Scottish soldier and author, born in Feb. 1708, died Aug. 3, 1778. In 1723 he was admitted to the Scottish bar; but not liking the legal profession, he entered the army the same year, and in 1740 was lieutenant-colonel in the expedition to Carthagena. Afterward he turned his attention to literature, and published "Thoughts on Money, Circulation, and Paper Currency" (Edinburgh, 1758); an "Inquiry into the Origin and Consequence of the Public Debts;" "Queries relating to the Proposed Plan for altering Entails in Scotland" (1765); "Letter to Lord Hailes on his Remarks on the History of Scotland" (1773); and "Considerations on the Present State of the Peerage of Scotland" (1774). In politics he was an adherent of the exiled house of Stuart, with whom he maintained a secret correspondence.

MURRAY, Sir Robert, first president of the royal society of London, born in Scotland about the beginning of the 17th century, died in June, 1673. In his youth he entered the French service, and rose to the rank of colonel. Subsequently returning to Scotland, he became an ardent supporter of Charles I., and afterward of Charles II., the latter of whom in 1651, during his brief reign in Scotland, appointed him justice clerk and lord of session. During the protectorate his offices were taken from him, but he received them again at the restoration. He now appeared as a prominent member of a small club which had been lately established in London by Boyle, Lord Brounker, and others, for the discussion of questions in natural science, or, as it was then termed, "the new philosophy," and which by Sir Robert Murray's efforts obtained a royal charter as a regular scientific body. Bishop Burnet, in his "History of his Own Times," calls Murray "the wisest and worthiest man of that age."

MURRAY, William. See Mansfield.

MURRAY, William Vans, an American diplomatist, born in Maryland about 1762, died Dec. 11, 1803. In 1783 he went to London to study law, and while there published a pamphlet on the constitution and laws of the United States. In 1785 he returned to Maryland, practised law, was elected a member of the legislature, and served as representative in congress from 1791 to 1797. By Washington he was appointed minister to the Batavian republic, and afterward, in conjunction with Ellsworth and Davie, assisted in making the treaty between France and the United States, signed at Paris, Sept. 30, 1800. He returned to the Hague as resident minister, came back to this country in 1801, and passed the rest of his life in retirement at Cambridge, Md.

MUSÆUS. I. A Greek poet, who flourished at Athens in pre-historic times. He was said by some to have been a native of Thrace and a son of Orpheus; while others represented him as the son of Eumolpus and Selene, or of Antiphemus and Helena, and the disciple of Orpheus. He was regarded as the author of various compositions, especially of such as were connected with the rites of Ceres at Eleusis, over which he was thought to have at one period presided. According to a tradition preserved by Pausanias, the Museum at Piræus received its name from Musæus having been interred there. A few specimens of his reputed works are extant; but Pausanias deemed none of the productions ascribed to him genuine except a hymn to Ceres. II. A Greek grammarian, supposed by most modern critics to have lived at about the beginning of the 6th century A. D. He was the author of the poem on "The Loves of Hero and Leander," discovered in the 13th century. The best editions of it are those of Passow (Leipsic, 1810) and Schaefer (1825). It was jointly translated into English by Marlow and Chapman (1606), and there are several other English versions.

MUSÄUS, Johann Karl August, a German author, born in Jena in 1735, died in Weimar, Oct. 28, 1787. He studied theology, and was a candidate for a rural parish, but his services were declined on account of his having participated in a dance; upon which he renounced divinity, and accepted in 1763 an employment at the court of Weimar, as governor of the pages. He exchanged this office in 1770 for that of professor at the gymnasium of Weimar, which he held until his death. He wrote *Grandison der Zweite*, republished in 1781–'2 under the title of *Der Deutsche Grandison*, directed against Richardson's admirers. He also took the field against Lavater in his *Physiognomische Reisen*. His *Volksmärchen der Deutschen* (5 vols., 1782) gained a still wider popularity, which they retain to this day, and an illustrated edition was published at Leipsic in 1848. Kotzebue prepared an edition of his remains (Leipsic, 1791), with a biography of the author, whom he justly calls the good Musäus. Carlyle's "Specimens of German Romance" (London, 1827) contains admirable English versions of some of the most pleasing tales.

MUSCAT, the capital of Oman, and of the states of the imam or sultan of Muscat, situated near the E. angle of Arabia, at the head of a small inlet of the Indian ocean, near the entrance to the Persian gulf, in lat. 23° 38′ N., long. 58° 42′ E.; pop. of the city and suburbs estimated at 60,000. The cove of Muscat, as the harbor is called, is about ¾ of a mile long, with half that breadth, opening to the N. W., and consequently completely sheltered from the prevailing winds or monsoons. To the W. of this inlet is a larger bay capable of affording shelter to shipping when the weather renders it difficult to enter the cove. The town stands on the S. side of the cove, in a hollow at the foot of cliffs 400 or 500 feet high, and shut in by high rocks from a view of the sea. It is built along the shore in the form of a horse shoe, and there is only one pass communicating with the interior. The hills are occupied by a circle of forts. Many of the houses are mere mat huts, and even those of the better class are only one story high. The sultan's palace is a plain edifice. The streets are so narrow that a few palm leaves laid across from house to house form a complete shade from the sun. The climate is excessively hot. The land breeze at night is suffocating, and the thermometer rarely falls below 90° in the shade. About 3 m. W. of Muscat and connected with it by a good road is the town of Mattra, nearly equal to it in population. Mattra has docks for building and repairing ships; and a large proportion of its population are engaged as fishermen, boatmen, sailors, and pilots. Sugar and coarse cloth are manufactured. There is an extensive transit trade with Arabia, Persia, and India. Cloth and corn are the principal imports, and their value amounts to about $5,000,000 annually. The exports consist of dates, horses, salt fish, hides, and madder, which are sent to India; sharks' fins to China; and asses, &c., to Mauritius. The harbor abounds with fish, and the pearl fisheries are not far distant. The inhabitants of Muscat are of various races, Arabs, Persians, Hindoos, Syrians, Koords, Afghans, Beloochees, negroes, &c.; and the prevailing language is a kind of corrupt Hindostanee, the Arabic tongue being confined to the native Arabs.—Before the Portuguese found their way into the Indian ocean, Muscat was a place of considerable importance, and was subject to Ormus. Albuquerque took it in 1507, and it shortly became the centre of the Portuguese commerce in that part of the world. In 1648 the natives expelled the Portuguese, raised a strong maritime force, took possession of several places in the Persian gulf, and in 1707 obtained permission from the king of Pegu to build vessels in his territory. They constructed ships armed with from 30 to 50 guns, and committed great depredations upon the towns on the coast of Malabar and the Persian gulf, and upon vessels trading in the Indian ocean. During the latter part of the 18th century they laid aside their piratical habits, and engaged largely in commerce; and after the accession of Said Seid in 1808, their territory has rapidly increased both in wealth and extent. This ruler was sultan of Oman, but was better known by his ecclesiastical title of imam of Muscat. The beginning of his reign was disturbed by pirates and Arab rebels; but the English East India company, in order to suppress piracy in those seas, joined the imam with a considerable force, and by 1822 his enemies both by sea and land were either subdued or driven into the interior of the country; so that, with the exception of the islands in his possession, his authority never extended much beyond the coast. In Asia the possessions of the imam of Muscat included the whole of the S. E. coast of Arabia, from the British settlement of Aden to Ras-el-Had, all the territory of Oman, nearly the whole of the coasts of the Persian gulf, the Bahrein islands, Ormus, and the coast of Mukran. In Africa nearly the whole of the territory extending between Cape Guardafui and Cape Delgado was tributary to him; and the fine islands of Socotra, Remba, Zanzibar, Mafea, &c., formed part of his dominions. The imam's rule, though despotic, was said to be just and liberal, and his subjects have made considerable progress in civilization. Traders enjoyed perfect security, and many foreign merchants from different parts of the world settled in his capital. In 1840 Said Seid removed his court and the seat of his government from Muscat to Zanzibar, and the island has since made rapid advances. The United States was the first power to appoint a consul at the new capital; the English followed their example in 1843, and the French in 1847. Several foreign commercial houses have been established, and the trade has proved exceedingly profitable. The revenue of the imam was derived from commerce, from import duties on foreign merchandise, and from tribute from dependent princes. He employed many vessels in commerce; and his naval force consisted of more than 70 sail of different sizes, a few of which carried 74 guns. Almost all the ships belonging to the imam and his subjects were built in British India, principally at Cochin, on the Malabar coast, and they are generally very fine vessels, many of them being 800 tons and upward. The officers are intelligent, and numbers of them understand navigation, and make successful voyages to China and different parts of the Indian archipelago. The imam had commercial treaties with the United States, with Great Britain, and with several other foreign powers. In 1840 he sent a present of valuable Arab horses and other articles, in one of his war vessels, to the president of the United States; and about the same time he presented a man-of-war, built of East India teak and complete in all respects except her armament, to the queen of Great Britain. In 1856 Said Seid paid a visit to Muscat, and died of dysentery on his return voyage, about the end of the year. He left a numerous family, and his son Majed succeeded him as sultan of Zanzibar and ruler of the African dominions, while another son has established himself at Muscat and assumed the sovereignty of the Asiatic provinces.

MUSCATINE, a S. E. co. of Iowa, bordering on Ill., from which it is separated by the Mississippi river, and intersected by Red Cedar river; area, 440 sq. m.; pop. in 1859, 15,503. It has a diversified surface and fertile soil, and contains extensive beds of coal and quarries of freestone and limestone. The productions in 1859 were 561,702 bushels of Indian corn, 154,608 of wheat, 17,580 of oats, 57,297 of potatoes, 10,372 tons of hay, 8,066 gals. of sorghum molasses, and 260,111 lbs. of butter. The value of general manufactures in that year was $696,194.—MUSCATINE, capital of the above co., on the Mississippi, at the apex of the "great bend," in the midst of a series of picturesque bluffs, 100 m. above Keokuk, and 32 m. S. E. from Iowa City; pop. in 1856, estimated at 9,000. It is the centre of a large and increasing trade, and the river landing is very good, with space for improvements in levees. In 1856 there were 3 steam flour mills, with a capital of $148,000, 2 steam saw mills, 2 planing mills, several manufactories, a large variety of stores, and 16 churches and religious societies. The annual sale of lumber exceeds 10,000,000 feet. It is connected with an extensive network of railroads.

MUSCLE (Lat. *musculus*), a term applied to the fibrous contractile tissue forming the flesh of man and animals, by which locomotion and the various functions of life requiring voluntary or involuntary movements are performed. Whether elongated in shape or enclosing a cavity, this tissue is arranged in the form of fibres, usually in bundles connected by areolar tissue, surrounded by a vascular network, and supplied with nervous filaments. Muscles are so arranged as to produce great velocity, extent of motion, and strength, without injuring the beauty of proportions, by the obliquity of their fibres to the tendons and of the last to the bones on which they act, and by the proximity of their points of insertion to the axis of motion of the joints. Muscle is attached to bone by means of tendons, rounded or flattened fibrous cords, white and shining, and very resisting; aponeuroses or fasciæ are firm, shining fibrous membranes, enveloping the muscles, giving attachment to their fibres, and fixed often to bones like the tendons. Muscle occupies the whole distance between the skin and the bones, and takes an elongated, broad, or thin form, according to the necessities of the several parts of the body; its strength is in proportion to the length and thickness, and may be rapidly exhausted by continuous exertion. Muscles are called voluntary or involuntary, according as they are or are not under the control of the will; the division is not strictly accurate, as all of the former at times contract independently of the will, and many of the latter are to a certain extent under the influence of volition. The former are generally solid, as the ordinary muscles of motion, and the latter hollow, as in the heart or the muscles surrounding cavities and canals; the former are striped crosswise with very delicate and close parallel lines, which, with a few important exceptions, are not found in the latter; the most marked of these exceptions is the heart, which is composed of striated fibres; the upper portion of the muscular coat of the œsophagus, though the will has no power over its movements, displays the same striped character. As the structural differences between these two kinds of muscle are constant and easily perceived, and seem to have certain relations to the varying activity and mode of exercise, it is convenient to preserve this distinction. The length of human muscular fibre varies from more than 2 feet in the *sartorius* to not more than 8 lines in others. The diameter in the uncontracted state, according to Mr. Bowman, averages in man $\frac{1}{352}$ of an inch, in woman $\frac{1}{454}$, in other mammals $\frac{1}{561}$, in birds $\frac{1}{507}$, in reptiles $\frac{1}{484}$, in fishes $\frac{1}{228}$, and in insects $\frac{1}{419}$; but in all the classes there is considerable variation in the same animal and even in the same muscle; the fibres of the heart are generally smaller than in other striped muscle. The form of the fibre is more or less cylindrical, sometimes flattened or irregularly polygonal; the color depends on that of its elements and on the blood in its vessels, varying from white in crustaceans and most fishes and reptiles to the red of the higher animals, and the very dark of the pectorals of some birds. Each fibre of voluntary muscle, according to Mr. Bowman, will separate into thin disks in the transverse striated lines, and also into fibrillæ by longitudinal division; the former are most evident in some fishes (as the eel), while the latter are best seen in man and mammals. A disk or fibrilla is made up of primitive particles or sarcous elements, minute portions of muscular substance or myoline surrounded by a thin cell wall, like so many beads; these particles do not vary much in size and shape in all animals and at all ages; and are from $\frac{1}{6000}$ to $\frac{1}{10000}$ of an inch in diameter; in these the contractile power is believed to reside. According to Dr. Barry, the flat filament or fibrilla consists of 2 spiral threads side by side, with their coils interlocking. The elementary fibres contain among the primitive particles corpuscles or nuclei of the original cell structure, of the average diameter of $\frac{1}{1000}$ of an inch; every fasciculus or series of fibres is invested with a tube of very thin but tough and elastic membrane, the *sarcolemma;* this isolates and protects the contractile tissue, facilitates the motions of contiguous fibres, and perhaps serves to conduct the nervous influence among them; each fibre at its extremity is attached to fibrous tissue. The unstriped elementary fibres, or those of organic life, are soft, pale, flattened bands, apparently homogeneous, from $\frac{1}{2000}$ to $\frac{1}{3000}$ of an inch in diameter, with frequent prominences occasioned by the elongated corpuscles; the existence of a sarcolemma in these is doubtful. A good example of this kind of muscle is seen in the circular fibres of the intestines, where it is uncertain whether they are parts of circles, circular, or even spiral. The fixed point of a muscle is called its origin, and the movable one its insertion; the capillaries of muscle may be easily injected and be seen running in parallel lines between the fasciculi, giving off transverse connecting branches; its nerves end in loops, returning into each other. As a general rule, the striped fibre is found in all the voluntary muscles, and in some involuntary (as in the constrictors of the pharynx, beside those above named); voluntary muscles are those put or retained in action by the will through the instrumentality of the cerebro-spinal system of nerves; those presiding over the acts of swallowing, breathing, and genito-urinary functions, are only partially under the control of the will. The unstriped fibre occurs in the muscular apparatus of organic life, whose activity is but little dependent on nervous agency, and that little derived from the sympathetic system; here belong the muscular coat of the alimentary, respiratory, and genito-urinary passages, of the ducts of the glands, of the blood vessels, and the dartos. Striped fibres have been found in all vertebrates and in articulates; as we descend the animal scale the movements become more and more automatic, until complex muscular action gives place to simple ciliary vibration. The contractility of muscle depends on an inherent property, independent of, though capable of modification by, nervous influence; contractility and development are proportionate to each other, showing the connection of the former with the condition of nutrition and not with the influence of the spinal cord. The stimuli which induce contraction are volition, emotion, impressions conveyed to the nervous centres and involuntarily reflected thence, and various physical and chemical agents applied to any portion of the course of a motor nerve or to the muscular fibres. A muscle in action becomes shorter and thicker, changing its relative proportions without any actual change in bulk; after death muscles become stiff from contraction, constituting the *rigor mortis;* all muscles have a power of passive contraction or tonicity from the very nature of the tissue, and by this they are brought into a state of equilibrium during sleep, this power ceasing with life. In the active contractions which characterize muscle on the application of stimuli, force is exerted against some opposing power; this is attended with more or less exhaustion or fatigue, and requires intervals of rest; sustained contraction consists of an infinite number of partial momentary contractions acting in succession. To show the wonderful power of adaptation which the ordinary acts of life require, it may be stated that there are in the human body 527 distinct muscles, of which 261 are in pairs, and 5 single on the median line; of these there are in the head and face 83, the *orbicularis oris* being single; in the neck 49, the arytenoid of the larynx being single; in the thorax 78, the *triangularis sterni* and the diaphragm being single; in the abdomen 33, the *sphincter ani* being single; in the back 78; in the upper extremities 98, and in the lower 108. Yet, with all this complex apparatus, every thing is in perfect order and harmony. Matteucci and Du Bois-Reymond have investigated the electric currents of muscles; for the interesting details therewith connected, both physiological and pathological, the reader is referred to recent works on physiology. The combination of the muscular movements is in most cases so far independent of the will, that we are apt to lose sight of their perfection; but let paralysis affect one side of the body or contraction draw up a muscle, and the fact becomes at once evident, as may be every day seen in palsy of one side of the face, or strabismus with the turning in or out of the eye; the simple process of walking, performed it may be unconsciously, with its nice adjustments executed for us by the automatic guidance of the senses rather than by any act of the will, is what the most ingenious mechanician can never effect in an automaton, from the impossibility of harmonizing the many acts which constitute walking. The energy and rapidity of muscular contraction is more remarkable in the lower animals than in man. The muscular power of insects is seen in the rapid flight of the dragon fly, the leap of the flea and the cricket, the fixed attitudes of some larvæ, and the strength of beetles. It is very great in the flight of birds, though their whole structure is organized for aërial motion; the power of the wings is 8 times as great as that of the legs in ordinary birds, and their absolute power in proportion to the weight of the body as 10,000 to 1; in small birds the movements of the wings are so rapid that they cannot be counted by the eye; the muscular force of the hawk can propel it 150 miles an hour, and the albatross can fly across the ocean without fatigue. Dragons, flying fish, phalangers, and squirrels (pteromys), though well organized in some respects for aërial progression, cannot fly for want of sufficient muscular power; but the extinct pterodactyle and the existing bats show extensive powers of flight. The amount of muscular force necessary for flight is so great, that if man could concentrate all the strength employed in a day's labor, he could not support himself in the air for more than 5 minutes; the accomplishment of flight in man, even with the assistance of mechanical contrivance, may be safely considered an impossibility. The energy of the muscular system of fishes, considering the rapidity with which they move in their dense medium, must be very great. Other familiar examples of muscular power are seen in the constrictions of the boas; the leap of the frog, kangaroo, jerboa, and hare; the speed of the antelope; the spring of the lion; and the strength of the ox and elephant. The muscular power of man is more advantageously displayed by the extent of motion than by actual force; but by scientific training great strength may be obtained from naturally feeble persons. The rapidity of muscular action is familiarly seen in the ventricular contractions of the child's heart, each of which occupies about $\frac{3}{20}$ of a second; in the movements of the vocal cords in rapid singing or speech; and most remarkably in the flight of insects, whose wings strike the air sometimes thousands of times in a second, by a muscular mechanism and arrangement of elements mentioned under GNAT. Every muscular act involves an interstitial change, a disintegration of this tissue and its re-formation from the constant supply of blood to the parts specially active. Muscle may be hypertrophied from excess of nutrition arising from abundance of formative material, from increased supply of blood, but principally from preternatural formative capacity; the opposite conditions lead to atrophy of muscle. A remarkable change in muscle consists in its fatty degeneration to which the fibres of the heart are very subject; the muscles of the limbs after paralysis are occasionally thus affected. Throughout the animal kingdom the development of the muscular system is in conformity with that of the nervous system. The vertebral system of muscles is most developed in fishes; the costal in serpents; the hyoid in fishes; those of the limbs inversely as those of the spine, feeblest in fishes; the masticatory in vertebrates; the tegumentary in those mammals armed with spines (like the hedgehog and porcupine), and in the unpaired or vertical fins of fishes; those of the voice in birds, mammals, and man; the diaphragm in mammals only. The muscles of the hand reach their highest perfection in man, while those of the tongue, eyes, ears, and nose show that many systems are most complete in the lower mammals, existing in man only in a comparatively rudimentary condition.

MUSCLE SHOALS. See TENNESSEE RIVER.

MUSCOGEE, a W. co. of Ga., separated from Alabama by the Chattahoochee river, and bounded E. and S. E. by Upatoi creek; area estimated at 200 sq. m.; pop. in 1859, 15,072, of whom 6,300 were slaves. The county was divided subsequently to the U. S. census of 1850. It is intersected by the Muscogee railroad, which has its terminus at the capital, Columbus.

MUSCOVY. See RUSSIA.

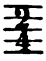
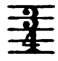
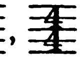
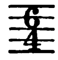
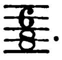
MUSCOVY DUCK. See DUCK, vol. vi. p. 45.

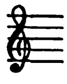
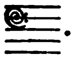
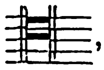
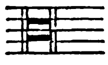
MUSES (Gr. Μουσαι, from μαω, to strive, to conceive), in classical mythology, the goddesses originally of song, and afterward of all kinds of poetry and of the arts and sciences. From the time of the earliest legends they had their principal seats in Pieria on Mt. Olympus and in Bœotia on Mt. Helicon. Homer styles them the Olympian, and Hesiod the Heliconian; according to the latter, however, they were born on Olympus, and dwelt at a short distance from the pinnacle on which Jupiter was enthroned, whence they visited Helicon to bathe in Hippocrene, and celebrate their choral dances around the altar on the top of the mountain. Müller infers, from the fact that the worship of the Muses originally flourished on the same mountain which was represented as the common abode of the gods, that it was the poets of that region, the ancient Pierian minstrels, whose imagination created and arranged the Olympian council. Elsewhere they were chiefly honored as the nymphs of fountains. They were commonly esteemed the daughters of Jupiter and Mnemosyne; but were also called daughters of Cœlus and Terra, of Pierus and a Pimpleian nymph, of Jupiter and either Plusia, Moneta, or Minerva, of Apollo and Plusia, and of Æther and Terra. Their number was variously given at first, either 3, 4, or 7, but was at length established and recognized as 9 throughout Greece. Hesiod first states the names of all the 9, by which they are usually designated: Clio, the muse of history; Euterpe, of lyric poetry; Thalia, of comedy; Melpomene, of tragedy; Terpsichore, of choral dance and song; Erato, of erotic poetry; Polyhymnia, of the sublime hymn; Urania, of astronomy; and Calliope, of epic poetry. In Homer as in later authors they sing festive songs at the banquets of the gods, and are invoked by mortal poets to bring before the mind the events which they have to relate, and to confer the gift of poetry. They punished Thamyris, who had presumed to excel them, with blindness; stripped the sirens, who had ventured on a contest with them, of their wings; and metamorphosed the 9 daughters of Pierus, who sought to rival them, into birds. Though usually regarded as virgin divinities, the greatest mythical bards, such as Linus and Orpheus, were called their sons. Apollo, as the god of the lyre, led their choir, and they themselves had the gift of prophecy. They were worshipped with libations of water or milk and honey, received various designations from the poets according to the places that were sacred to them, and were represented each with particular attributes in works of art.

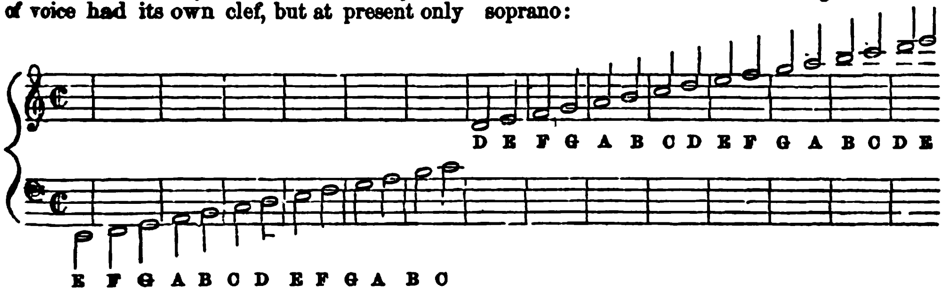
MUSEUM (Gr. μουσειὸν, a temple of the Muses), a building or room devoted to the collection and preservation of rare and interesting objects in nature and art; or more properly perhaps the collection itself. The name is said to have been originally applied by Ptolemy Philadelphus to that part of his palace in Alexandria which he set apart for the promotion of learning and the support of learned men. More in accordance with the modern idea of the term were the celebrated temples of Apollo at Delphi, of Juno at Samos, or the acropolis at Athens, stored with the choicest works of art, and with consecrated gifts of immense value, by generations of pious devotees. When the Greeks had succumbed to the power of ruder races, these edifices were despoiled of their chief treasures, which were accumulated by the successors of Alexander and the Roman emperors in their capitals, more for the purpose of adding to the splendor of triumphal pageants, or as evidences of far-reaching conquests, than from a desire to found collections of works of art. It was in this spirit doubtless that Nero ordered 500 statues to be sent from Delphi to ornament his "golden house." In later ages the irruption of barbarian hordes into the ancient seats of civilization involved the existing works of art in a common destruction. Rome, which had despoiled so many conquered provinces, suffered herself to such an extent, that, at the period of the renaissance or new birth of art, of all her vast collections but a few antique bronzes and statues were known to be in existence. With the awakening taste for art arose a desire to collect the relics of civilization of earlier ages; and to Cosmo the Great of Florence, who laid the foundation of the famous Florentine museum, is due the conception of the museum in its modern signification. His example was followed by other eminent men in Italy, and Pope Leo X., a member of the house of Medici, with many of the Roman nobility, adorned their palaces and villas with antique ornaments, coins, and statuary, procured principally by excavation. The spirit of emulation which this new taste excited among the great Italian families made their residences at first the richest depositories of art, and it was only by degrees that public museums assumed the character of completeness, symmetry, and judicious arrangement which they now present. The mania for collecting was during the 16th and 17th centuries carried to such an excess, that, for the purpose of enriching capital cities, outlying provinces were stripped of their choicest works of art, which were crowded together with so little regard to taste, that the buildings appropriated to their reception savored more of the modern curiosity shop than the museum. With the present century a better system of arrangement has come into vogue, and the contents of the great European museums are now disposed in situations corresponding to their character, and with due regard to their effect upon the spectator. These contents, from being devoted exclusively to the remains of antiquity, now embrace works in every department of modern or contemporary art, and vast collections of rare and valuable natural productions. The latter, from their practical character and importance in aiding the development of natural science, have gradually been formed into distinct museums of anatomy, geology, zoology, botany, and the other great branches of physical knowledge which modern researches have so greatly augmented and developed.—In Italy, the earliest seat of modern art, the most celebrated museums are the Vatican at Rome, the Florentine museum, and the Museo Borbonico at Naples, all filled with choice pictures, statuary, and remains of ancient art. Turin, Modena, and other Italian cities possess institutions similar in character, but of less extent or value; and here, as elsewhere in Europe, galleries of pictures are considered as coming within the meaning of the term museum. The principal cities of Germany vie with those of Italy in the richness and completeness of their collections of the products of art, Berlin, Vienna, Munich, and Dresden being particularly distinguished in this respect. In Gotha, Weimar, Nuremberg, Cassel, Darmstadt, Bonn, Frankfort-on-the-Main, Stuttgart, Breslau, Prague, Cologne, and in other cities, the museums are well appointed and intelligently arranged. The most extensive one in eastern Europe is that of St. Petersburg, which, although of comparatively recent formation, is already one of the richest in the world. The collections of Odessa and Kertsch, the latter of which was considerably damaged during the war in the Crimea, are also deserving of notice. France possesses in its Louvre and Luxembourg palaces in Paris, two of the noblest collections of pictures, sculpture, antiquities, and other objects of art ever made. Other interesting collections of objects of art and nature are contained in the same city, including the museums of comparative anatomy, zoology, &c., at the *jardin des plantes*, as also in Rouen, Grenoble, Orleans, Lyons, and the chief French cities. Denmark has its Thorwaldsen museum in Copenhagen, remarkable for its collection of the works of that artist; and in Stockholm, Amsterdam, Antwerp, Brussels, Ghent, Madrid, Lisbon, and elsewhere in continental Europe, are museums of pictures of considerable value, which, as in the case of the institutions already mentioned, will be found more particularly described under the names of the places where they are established; in the more prominent instances, as the British museum, the Vatican, and the Louvre, they are described under their own names. The Ashmolean museum in Oxford, founded by Elias Ashmole in 1679, is the most ancient in England, but is overshadowed in importance by the British museum in London, an institution unsurpassed in its literary treasures and costly relics of antiquity. In the United States the term museum has been applied to buildings of a public character, containing a heterogeneous collection of objects, animate as well as inanimate, and which are in some instances used also for theatrical performances. The museum of natural history in Philadelphia, particularly rich in its ornithological department, and the collections illustrating the manners and productions of various races and countries deposited in the Smithsonian institution and other public buildings in Washington, are more worthy of the name. In 1859–'60, chiefly through the efforts of Professor Agassiz, a museum of comparative zoology, designed on a very comprehensive scale, was established in Boston, and promises to become very interesting and valuable.

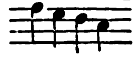
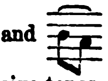
MUSHROOM, the name applied to some of the species of *agaricus*, which are more particularly used for food. Of these the common mushroom (*A. campestris*, Linn.) is considered to be the most nutritious, and is used extensively wherever it can be found; it is the one preferred in preparing a sauce known as ketchup. The common mushroom belongs to the natural order of *fungi*, most species of which are poisonous, and fatal consequences have resulted from not knowing how to distinguish the few which are valuable from the majority which are dangerous. The mycelium of the mushroom consists of white, cottony threads, running horizontally just below the surface of the ground, and serves in some way for the nutrition of the rest of the plant. From this arise at the proper season of the year several small knobs, which increase in size until they penetrate the soil above; these do not however appear simultaneously, but are projected at periods during several weeks, whenever the state of the weather is favorable. When one of them has broken the surface, it comes up with a convex top, and in this stage of growth it is called the button. In a few hours the button spreads out horizontally, and the flattened part is called the *pileus.* Intermediate between the ground and the lower surface of the pileus is the stem or stipe; if this be broken across, it will be seen to have considerable firmness of consistence and to be of a prevailing white color. Just below the pileus is the *annulus* or ring surrounding the stipe, its origin being the lower edge of the pileus separated from the envelope (*volva*) of the button condition of the plant by being torn across in the upward growth of the stipe. The under side of the pileus is furnished with numerous folds, the *hymenium*, the alternate ones of which are shorter than the others. These folds are sometimes called the gills, and upon their surfaces are borne innumerable dust-like particles, which are the spores or seeds. The upper surface of the pileus is dry, whitish, silky, or becoming scaly by the peeling of the epidermis into fragments, whose edges are slightly curled up; the odor of the pileus is pleasant. The mushroom is gathered when the gills are of a rosy pink color, though some prefer to gather it when in the button condition. As the mushroom begins to decay and perish, the gills are of a very dark brown color, and the plant is unfit for food. This species grows in old pastures where horses and neat cattle usually feed. It is much cultivated in Europe for a table delicacy. The mycelium is collected, mixed with dung and clay or mould, in which the spawn rapidly diffuses itself; the mass is then broken into small pieces and planted in beds prepared for its cultivation. The vitality of the mycelium is such that dryness for a long time does not seem prejudicial. Some mushroom growers prefer to search for the mycelium and transfer it fresh to their mushroom beds. Sometimes pieces of the gills are soaked in water for 5 or 6 days, and the infusion containing the spores is sprinkled over the beds for the purpose of raising a crop from the seed.—The champignon (*A. oreades*, Bolton) has a tough, fleshy pileus, at first pale brown, becoming whiter with age; the gills are whitish; the stipe round, whitish, with a skin which separates into longitudinal fibres; it has no ring. The qualities of this species, according to Lindley, are fragrant, stimulant, and nutritious. It occurs in the pastures and lawns of England, where it grows in irregular circles, and forms what are called fairy rings. When dried in the shade after being strung upon threads, the mushrooms are pounded and form an addition to rich sauces. The peppery mushroom (*A. piperatus*, Scopoli) has a short, thick, smooth stipe, and a pileus 4 to 6 inches broad, which is dry, pale yellow, with a deflexed margin, but curled inward when young; the gills are numerous, very narrow, linear, not quite straight, and repeatedly forked. It emits, when broken, an abundance of pungent, milky fluid. It occurs in woods in the months of September and October, and is considered edible, the pungent and acrid juice being lost in its preparation for food.—There are other species which are eaten, but considered dangerous, the milky-juiced ones especially; and unpleasant and fatal effects have followed from their use. The common mushroom (*A. campestris*) is the one preferred for food both in Europe and America, the two others being found likewise in the United States.

MUSIC (Gr. *μουσα*, a muse), one of the fine arts, the elements of which are melodious and harmonious sounds. Musical sounds arise from equal vibrations of the air set in motion by whatever cause. These vibrations are palpable in the strings of a piano, and in the tremblings of the organ loft when the deep pedal notes are sounded. (See Harmony.) When these sounds are deep or grave, the vibrations are comparatively few; when high or acute, they are many. For example: an appreciable musical sound is the lowest note of a great organ; this gives some 33 vibrations to a second of time; the highest note, however, affords some thousands of vibrations to a second. (For the means by which this most remarkable and subtle analysis of vibrations is established, see Chladni's "Acoustics.") Ideally there is no limit to the pitch or extent of sounds, but practically for the purposes of art such a limit exists. It is found in the human voice, which is the most perfect and the most expressive of musical instruments, and which in singing ranges from a note represented at E flat below the line in the base clef to E flat above the line in the treble clef, of the 5 parallel lines used for modern musical notation. A sound lower or higher than this is hardly capable of expressing a vocal sentiment. This extent includes the lowest note of the masculine voice and the highest of the feminine. Voices may be considered under 6 divisions, 3 masculine and 3 feminine, though there are exceptional instances where the extent of the voice supersedes to some degree such exact arrangements. The usual range of each of these voices is two octaves, though some have a greater and many a smaller compass. The deepest, and accordingly most manly voice, is the base commencing on or about F or E below the line of the base clef, sometimes a shade lower. The baritone voice is a less heavy masculine voice, commencing on or about G on the first line of the base clef. The tenor voice is the least robust but generally most tenderly toned of the masculine voices, and begins on or about B flat or C, as may be represented severally on the second line and space of the base clef. These voices are very distinct in their characteristics. The deepest feminine voice is the contralto, the lowest notes of which are represented in musical notation as an octave above the base. The second or mezzo soprano voice is rendered in notation an octave above the baritone. The soprano is notated an octave above the tenor.—Instrumental music possesses value and beauty just in proportion as it resembles the voice. The instruments in the orchestra, though far inferior in quality to the best voices, are with hardly an exception capable of greater range. Their scope is imitated from the human voice. Of the stringed instruments, the largest gives the deepest note, it being a law that profundity of tone is in the ratio of size. The same rule holds for the wind instruments, increased volume augmenting depth, and the contrary. The most comprehensive instruments as to extent are the great organ and the pianoforte; these give all and more than the low and high notes found on all the instruments used in the orchestra, viz.: the violin, viola, violoncello, and double base; and the octave flute, large flute, hautboy, clarionet, bassoon, trumpet, horns, trombones, tubas, and kettle drums.—The octave in music derives its name from the fact that the natural scale of music, after giving from any key note or radical point of departure 7 distinct tones, reproduces the original note in a less grave manner—an identity, yet with a difference, if a paradox may be used. Nature asserts this reiteration to the ear; and the poetical beauty of the fact is indefinitely heightened when we reflect that the difference of the masculine and feminine voices, as expressed severally in the strength of manly or the sweetness of womanly tones, is measured by octaves. As the original note is so produced at every 8th interval, the names of the notes are simply repeated again and again for each new scale of 7 notes. Hence 7 signs, A, B, C, D, E, F, G in English, or *la*, *si*, *do*, *mi*, *re*, *fa*, *sol* in Italian, represent all the scales. Octaves coalesce so perfectly, that any passage or tune sung at one pitch can be given at the same time effectively and properly at octaves above or below it. Hence an air sung by a base voice may be rendered simultaneously by the tenor or contralto at one octave above, and the soprano two octaves. In instrumental music a passage or air may be played thus on 5 or 6 octaves at the same moment. The notes which lie closest together or at the interval of a second are the least harmonious, and, except when scientifically treated, affect the ear unpleasantly. The harmony of the interval of the third is perfect. Take a key note, add one major third, and then another, a minor third or a half tone less in extent than the major, and there occurs the perfect major chord of 3 notes, called the tonic or key note, the mediant or third, and the dominant or fifth; this chord is the root of the large and expressive scheme of harmonies. The scale of 7 notes with the octave includes two degrees, half the extent of others; nature therefore recognizes the half tone. The scale accordingly is thus divided: 1st to 2d interval, a tone; 2d to 3d, a tone; 3d to 4th, a half tone; 4th to 5th, a tone; 5th to 6th, a tone; 6th to 7th, a tone; 7th to 8th, a half tone. Art next has divided the whole tones of the scale, which are 5, into halves, and this, with the two half tones of the natural scale, gives the chromatic scale of 12 half tones. The minor scale is found a third below the major, and differs from the major in lowering the third a half tone, and raising a half tone, under certain conditions, the 7th of the scale.—Musical notation, or the expression of musical ideas by means of certain conventional signs, has undergone many changes in Europe, and the present system is the result of a long series of improvements. The ancients had ways of writing music which are now very imperfectly or not at all understood. The oldest legible notation of Christendom is on 3 or 4 parallel lines, the notes being square or angular and variously colored. The melodies are not divided into measures by bars, though the notes are of different lengths. This old system is preserved, with slight modifications, in the plain chant of the Roman Catholic church, and may be seen even in the missals, vesperals, and graduals which issue from the modern press. The notes are square and diamond-shaped, and are written on a staff of 4 lines. A bar is used at the end of every word. The signs now employed in music denote the length, pitch, and force of tones, or rhythm, melody, and expression. The length of a note is represented by its shape. The notes are the breve 𝅜 or ‖𝅜‖, semibreve 𝅝, minim 𝅗𝅥, crotchet ♩, quaver ♪, semiquaver 𝅘𝅥𝅯, demisemiquaver 𝅘𝅥𝅰, and demiquaver 𝅘𝅥𝅱, but the first and last of these are little used. The breve is twice as long as the semibreve, the semibreve twice as long as the minim, and so on. A dot following a note lengthens it one half, thus, ♩. = ♩‿♪. Rests, indicating silence, are: 𝄻, equal in length to 𝅝, or a whole bar; 𝄼 = 𝅗𝅥; 𝄽 = ♩; 𝄾 = ♪; 𝄿 = 𝅘𝅥𝅯; 𝅀 = 𝅘𝅥𝅰; 𝅁 = 𝅘𝅥𝅱. Rhythm is further marked by the division of time into measures of equal length indicated by vertical lines or bars drawn across the staff. Measures again are divided into 2, 3, 4, or 6 parts, and the first part of a measure is almost always accented. There are 4 measures in common use: double, triple, quadruple or common, with a secondary accent on the 3d part, and sextuple with a secondary accent on the 4th part, each represented by figures placed at the beginning of the staff, as follows:

, ,  or C, and  or .

Thus, taking the crotchet as a standard, in double time there must be 2 crotchets or their equivalent in every bar or measure, in triple 3, in quadruple 4, in sextuple 6. There are exceptions to these rules, however, and even 5 crotchets to a bar have been used with eccentric effect.—The pitch of a tone is determined by its position on the staff, which consists of 5 parallel lines and the 4 intervening spaces, and by the clef, which indicates the pitch of all the notes on one line or space of the staff, whence the rest are easily found. In the early Italian school every kind of voice had its own clef, but at present only two are in general use, the treble or G clef of the violin, , and the base or F clef, . In some musical scores, however, particularly Italian, the C clef is retained for the tenor and alto parts. For the former it is placed on the 4th line, , which thus becomes the position of C, and for the latter on the 3d, . The popular plan in writing music in 4 parts is to put the alto on the same staff with the treble, and the tenor with the base or treble. With these staves, and the aid of short lines called leger lines placed above and below the staves, we are able to represent all the notes of the human voice, and even more. The following is the musical scale from the lowest note of the base voice to the highest of the soprano:



The pitch of any note may be raised half a tone by means of a sharp (#) placed before it, or lowered half a tone by a flat (b). When a sharp or flat is placed on a line or space at the beginning of a staff, it affects every note occurring on that line or space and its octaves throughout the piece. A natural (♮) restores to its normal pitch a note affected by a flat or sharp. A note or passage may be raised or lowered an octave by writing over or under it the sign 8va. - - - - - - - - . Beside the words *forte*, *fortissimo*, *piano*, *pianissimo*, and their abbreviations, *f.*, *ff.*, *p.*, *pp.*, indicating that a note or passage is to be given loud, very loud, soft, or very soft, there are the signs < (*crescendo*), denoting a tone gradually increasing from soft to loud; > (*diminuendo*), the reverse of crescendo; > (*sforzando*), an explosive tone instantaneously diminished;  (*staccato*), a short articulate utterance as if each note were followed by a brief rest; and  (*legato*), a binding together of successive tones.

Several attempts have been made to substitute letters and other signs for the notation now in use, but it seems too fixed to admit of change; and after all, the notation is the least of the difficulties which a learner of music has to overcome.—The music of nature suggested that of art. Melody and harmony are both found in the music of nature. Melody is the sequence of single sounds rendered by a single voice or instrument. Harmony is the combination of two or more notes sung or played at the same moment. The conditions of good melody require brevity; and, as a rule, a possible alliance with measured poetry and its pauses and punctuations, must underlie every melody which aspires to the dignity of vocal beauty, whether words be set to it or not. Of lines, 8, 12, or 16, seldom more than the last, suffice for a melody. For some reason, melody, which is divided into measures of equal length to make it agreeable or memorable, shrinks from rhythms of 3 or 5 measures, and demands those of 2, 4, 6, and 8. Accordingly, words set to melody are ranged thus: the 1st line of poetry requires two measures of music, the 2d two, the 3d two, the 4th two. If the symmetry of the poetical quatrain be observed, the melody in so far is correct.

But 4 lines are too brief; so a 2d or 3d quatrain gives a 2d or 3d part to the melody. Extra lines inserted, or shorter lines, give piquancy to it. Melodies, especially of the Italian school, often present the same notes, with hardly a variation, for the 5th, 6th, and 7th measures, with the 1st, 2d, and 3d. On the 4th measure, answering to the end of the 2d line of poetry, there occurs generally a semi-cadence, answering to a semicolon; but the close of the 8th bar answers generally to a full point. Hence it is evident that symmetrical poetry is intimately connected with music; and in the contracted musical system of the ancient Greeks, poetry and music were inseparable, and were always taught together. As in poetry there are syllables of different lengths, so in music there are notes of different lengths, and to a much greater point of diversity; for what would be a drawl in speaking may form one of the chief attractions of music, namely, prolonged notes. The composer accordingly varies constantly the length of his notes. Monotony is fatal to a melody; hence changes from one note to another must be constant. The more brilliant melodies, the bravura airs of operas, especially those for the feminine voice, extend over a wider range than songs for the drawing room or popular use. The latter generally do not employ more than 8 or 10 notes. The popular air of "The Last Rose of Summer" is on 8 notes; the "Star-Spangled Banner" extends to 12. A melody presupposes harmony; and a very few chords will accommodate any melody, though the composer may choose, for the purposes of coloring, and determining deeper meanings, to multiply his chords. The beauty of melody determines the development of the art.—The earliest MSS. capable of being deciphered which we have of European music are about 800 years old. The melodies of that day were such as ignorance of the resources of the voice, the varieties of length and pitch of notes, of the symmetries of cadence, and the splendors of modulation from one key to another, might suggest. They were feeble dawnings of musical light. Among these old MSS. some odes of Horace appear, and it may be conjectured were such as were sung after dinner in the poet's day. They may be described as musical declamation, but not melody as we understand it. It is generally conceded that the Greeks did not understand harmony, and that their lyre of a few strings merely played the notes of the voice. The discovery of some Greek musical MSS.—that is, poetry with musical signs—upon the revival of letters, gave rise to a great amount of erudition and passionate argument. Fanaticism in favor of Greek music culminated, but all to no purpose; for no satisfactory key to the Greek system was found. Although a treatise on ancient music by Euclid is extant, and other writers of antiquity who have come down to us discuss it, yet they shed little light on the ancient musical MSS. We know that the Greeks had many hundreds of musical signs; that to be a musician-poet required years of practice; but with the interpretations of the two or three extant Greek musical MSS., we can only discover, if the interpretations be right, that they had some sort of a minor mode, and declaimed in a kind of recitative, and intoned pretty much as is done in the Roman Catholic service by the priest. Religious, patriotic, or erotic poetry, so intoned or musically declaimed before a people of such lively imaginations as the Greeks, may easily have produced the effects ascribed to it by poets and historians; but it was the sentiment, and not the value of the melody. The Greek lyre was too poor an instrument to afford much melody, though the ancient flute might have had some advantages; but as there was a theocratic resistance to improvements in instruments, and the maintenance of music in prescribed forms was considered a state necessity, we may fairly infer that the science of music was not understood by the ancients. Indeed, it may be affirmed that without either the great organ or the pianoforte, the science of harmony could not have been created. Through these instruments the analysis of chords, the relations of keys, the intercourse in its fulness of melody and harmony, were established, and melody was developed to its present perfection. A Latin MS. of the 10th century gives evidence of some progress toward an understanding of harmony, and lays down certain rules which are at least interesting as showing what the theory of harmony was then. Some of these rules however are incorrect, and others want clearness.—As the church organ improved, we find harmony taking a wider and bolder range, and the genius of Palestrina especially imparted to the combinations of sounds meanings subsequently so improved upon and intensified. His theory of chords was chiefly plain processions of those found on the intervals of the scale, and a liberal use of what is technically called suspension, or holding a note of a chord over into the next chord before it settles on its appropriate place. In modern harmony there are 13 principal chords, derived from 3 which may be considered generic. Of these 13, 4 are called chords of the fifth, each being composed of 3 notes, namely, a first, third, and fifth, and called the major, minor, diminished, and augmented; 4 chords, composed each of 4 notes, and called chords of the seventh; 2 called ninths, major and minor, composed of 5 notes, the greatest number which a chord can contain without sacrifice of clearness; the augmented sixth; the augmented sixth with the fourth; and the augmented fifth with the seventh. Chords may be given incomplete, that is, with fewer notes than their entire number. They are varied thus: As there are 12 half tones on the scales, the chords may be given on 12 different keys or tonics. These keys are further duplicated by being changed into the minor scale. The suspension which we have described may alter and vary some of the chords, though others are sufficiently dissonant without; for it must be observed that of the 13 chords, only the 2 first of the list, the perfect major and minor, are consonant; and hence upon them alone can a strain or piece be completed. The others are more or less dissonant, and require to be resolved sooner or later in the course of their treatment upon the consonant major or minor. The appoggiatura, or a note a single interval above or below any note regularly in chord, struck simultaneously with the chord, varies it. A note suspended does the same. The suspension requires a note to be heard in one chord before it proceeds over to another; an appoggiatura requires no such preparation. Variety in chords is further secured by inversion; that is to say, every chord has its fundamental base note; but if, instead of putting this base note beneath, another note in the chord is so placed, the chord is said to be inverted. For example: the chord C E G is on its fundamental base, the C being lowest; but if E be placed below, so that it is given E C G or E G C, it is said to be on its first inversion; or if it be rendered G C E or G E C, it is said to be on its second inversion. Whenever music is written for parts, the laws of harmony necessarily come into play, and the skill of the composer is required, not only to have the harmonies correct, but that the parts shall be distinct and clear. This polyphonic style requires laws of a very intricate character, and hence persons capable of creating lovely melodies, and writing them in combination with other themes, are as rare as great poets. In harmonious treatment of music, the following are a few of the radical laws. In the regular progression of harmonies the fundamental base note falls a fifth to whatever note, or rises a fourth to the octave above it; but this law has many exceptions. If in the treble or soprano part the procession of notes is upward, say C D E G, the base cannot give the same notes, but must use others, such iterations being intolerable to the musical ear. Accordingly, it is a rule in harmony or part writing that contrary motion is best between the extreme parts; or that when one goes upward the others proceed downward, and the reverse. The parallel motion, as it is called, is in use between extreme parts, but then the notes must be different. Thirds or sixths move harmoniously together. When the parts are in octaves, the law against identical notes moving up or down together ceases, for the effect of such unity supersedes harmony for the moment. There are certain keys which have a close alliance to others. Given a certain key or tonic, for example, on which it is proposed to write a piece, say C: the keys having the closest alliance to this are G major, the fourth below; A minor, the third below; F major, the fourth above; and E minor, the third above. Next in order of alliance to C are E major, E flat major, A major, and A flat major. The key of B major is widely dissociated from C; so too B flat major; and F sharp major is a distant musical shore only to be approached in a long musical voyage. D minor and D major in their relations to C can be used but transiently. D flat major can be reached readily through C minor. The passing to a new key without an intermediate chord is called a transition; when one or more chords are used, it is called a modulation. Transitions are among the brilliant effects of modern dramatic music. A great surprise, sudden and violent emotion, warrants a transition, and the change may be further enforced by an explosion of all the orchestral instruments. The transition is marked in proportion as the notes of the scale are changed. A transition from C to G for the purpose named would be timid and feeble; but one from C to A flat or D flat would be effective. In the one case all the notes of the chord of G are found in the scale of C; in the others, two notes are changed; hence the shock.—The literature of the most polite nations of Europe is rich as regards the history of music. In this Italy was first in the field, but it is probable that the Saracens, who, in translations, carried Greek literature into Spain, illuminated music as well as philosophy when they took the lead in teaching the latter. Among the laborious historians of music was Padre Martini, born at Bologna, Italy, in 1706. He ranked as the most learned contrapuntist of his time, and wrote a *Storia della musica*, prodigious for learning, though clumsy in arrangement. It occupied him 30 years, and during this time he collected 17,000 volumes and MSS., for which he was largely indebted to Farinelli, the greatest singer in Europe. When we consider however the works of Dr. Burney and Sir John Hawkins on the history of music, to England must be conceded the honor of having produced the most complete treatises up to their time. These works exhibit immense historical erudition; their critical opinions are now of greatly diminished value, and not unfrequently worthless, but they must always be admired for the earnest, persistent, and devoted labors of their authors. The Bible affords us some knowledge of the music of the ancient Hebrews, and the classics throw more or less light upon the condition of the art in Greece. It was not however until Bruce gave a drawing from a painting of a harp in a tomb at Thebes, indicating that before Athens was built the Egyptians made harps of many strings, that the learned world acquired some insight into the ancient state of music on the Nile. This revelation proves that the claim for the superiority of Egyptian music over Grecian is true; for the harp of the former is wonderful as an exhibition of mechanical skill and acoustical proprieties. Its strings vary, according to different travellers, from 13 to 21; but it is about as large as the modern harp. It is further proved from the monuments that the Egyptians had an instrument with frets like the guitar; none of the hundreds of representations of instruments of Grecian music indicate that the Greeks had arrived at that point of ingenuity. What the Egyptian composition of music was can only be inferred, for no relics of it exist, unless the inartificial songs of the boatmen on the Nile be taken as samples of the art of a polished people. We are enabled however to arrive at the state of musical art among the ancient nations of the East, by considering it as it exists among those who still maintain their old creeds, associations, and even political forms. The Hindoo, Chinese, and Japanese music is probably what it was thousands of years ago, and merits attention. Dr. Burney says, in his "History of Music," that the oriental nations have no notation for sounds, or in other words no musical system. But this is a mistake. The Chinese even, whose music practically is unpleasant to refined ears, have some sweet-toned instruments, and a notation for the melodies played on them which is sufficiently clear. Their history and fables touching the art, moreover, antedate by many centuries those of classic nations; and divesting their legends of their fabulous dress, we find that in the time of the emperor Hoang-ti, some centuries before the Christian era, they had discovered that the octave was divisible into 12 semitones. The relations which the Egyptians assigned between the sounds of music and the planets, the signs of the zodiac and the 24 hours, are all found among the Chinese. The two Chinese instruments, the *kin* and the *che*, contain all the elements of whatever scales. Calculations among the Chinese on all combinations of sounds have been carried to a great extent. Kouie, a Chinese musician who lived 1,000 years before the assumed era of Orpheus, said: "When I play upon my *king* the animals range themselves spell-bound before me with melody." Confucius said 100 years before Plato: "Wouldst thou know if a people be well governed, if its manners be good or bad, examine the music it practises." In their system and practice the Chinese detail 8 different kinds of sound under which all can be classed: metal, stone, silk, bamboo, gourd, earthenware, skins, and wood. This division, according to them, is not factitious, but to be found in nature. They believe that, although all the different tones are to be found in each of the subtones, each however contains a note belonging to it more than to any of the others, and that nature in combining the particulars which produced it made provision for universal concord. The different substances are made into instruments. They are, beside the gong and the bamboo pipes, the *kin*, a body of thin wood curved like the top of a violin to increase resonance, with 5 strings of silk of different sizes; the *che*, an instrument kindred to the *kin*, but having the chromatic or scale of half tones; the *king*, a frame of wood with pendent stone, graduated through 16 notes, and struck with a hammer; drums; a species of flute, which anciently had but 8 finger holes; brass instruments of the trumpet species; guitars resembling the mandolin; and little boards with a pleasant sound. The Chinese make use of music in their most dignified ceremonies. The sacred imperial hymn, sung with great pomp annually, is a sequence of long-drawn notes, precisely parallel to the early church music in unison, and lacking the interval of the fourth and seventh, like the old crude popular scales of some European nations. The secular melodies of the Chinese resemble dishevelled sequences of notes, such as are found in playing on the black keys of the pianoforte. They eschew all harmony on principle. Music makes no progress among the Chinese, as their sumptuary laws would restrain its development if there were genius to advance it. The head of the musicians in China is called conservator of the 5 capital virtues: humanity, justice, politeness, wisdom, and rectitude. Their music affects a certain seriousness, rejecting the sensuous element. The Persians rank vocally among them as the Italians do among us, and it has been said that singers from that country make concert tours in China. —The higher style of oriental music, which has a limited degree of melodious merit, with rhythms logically and distinctly drawn from consociation with poetry as refined and liquid as the Italian, may be found in that of India, dating also from the remotest antiquity. The poetic legends of Hindostan, and indeed of all southern Asia, rival those of China and Greece in ascribing fabulous effects to music. The Hindoos consider every art as a direct revelation from heaven; and while their inferior deities communicated other arts, it was Brahma himself who presented music to mortals. To his son Nared is imputed the invention of the *vina*, a stringed instrument with a finger or key board for frets, being of the same family as the modern guitar. The Hindoo writers on music (and there are works exhibiting earnest study of its mathematical bases) theoretically recognize divisions of the scale corresponding to our octave in 22 fractional tones, these fractions being quarters or thirds, or approximate equivalents. As to the fractions, they admit practically that they have no existence, since only tones or semitones are known in their actual compositions. The succession of tones and semitones in their scale is that of the diatonic. The 7 notes of this scale they term *swarras* or sounds, the first or key note being distinguished from all others by this generic word, and the 6 others by different names. But their words being polysyllabic, the ancient Hindoo artists took their first syllables only to designate respectively the notes of the scale. The syllables thus chosen are quite as good as the Italian *do*, *re*, *mi*, *fa*, *sol*, *la*, *si*, *do*, and are as follows: *sa*, *ri*, *ga*, *ma*, *pa*, *dha*, *ni*. These are the notes of the major diatonic scale. The minor mode is also familiar to East India music. The finger board of the *vina* is about two feet long, with frets like the guitar, which permit the player to divide the scale into half tones over 14 notes. The Hindoo writers have names corresponding to ours for the tonic or first, the mediant or third, and dominant or fifth of the scale; and indeed there are multitudinous proofs of their assiduous study of the art, however limited their practical skill, owing to the paucity and imperfection of their instruments. They have music in common and triple time, that is, in groups of 2 and 3 notes severally. Ancient Hebrew music was, we may suppose, Egyptian in a less polished form.—Greek music, we have already seen, was probably little more than sonorous declamation, sustained by the lyre, and some pleasant notes from the flute and pandean pipes, with the martial trumpet on occasion. In the Greek drama the language was sung, not spoken. It was a musical recitative, and the chorus intoned. The theatres were very large, without roofs, and were capable of holding many thousands. To enable the performers to be heard well, it was necessary so to intone the voice; and moreover they wore metallic masks to add to the resonance. This was as artificial a mode of representing passion and emotion as the modern opera, though its means were fewer. The Romans were not a musical people, and their art was a copy of the Greek. During what is called the dark ages succeeding the fall of the Roman empire, the drama still existed in some simple form; and the church mysteries, or performances by religious persons of dramas, the subjects of which were taken from the Scriptures, continued to sustain it. The minstrels and troubadours, who performed and composed little lyrico-dramatic pieces, show the popular taste of the chivalric ages. While music was thus infused with the passion of chivalry in secular life, and melody taking form, the foundations of harmony were laid in the services of the church. The organ, unknown to antiquity (though a "water organ" is mentioned by an old writer, probably the first attempt preceding the majestic sonorous creation of modern times), evolved what may be considered the base of the structure of elaborate compositions for instruments. Out of the fugue, itself a sublime growth of the organ, have arisen the rhetorically constructed sonata, symphony, and overture, refined by the vocal proprieties and poetical alliances of operatic music. In this procession of art all cultivated nations took part, nor do we find that England lagged behind. Cathedral and choral music especially have for 8 centuries certainly been in an advanced condition there. But the origin of passionate grace and refinement in music is due to Italy. Already her genius had produced vocal compositions of a certain merit; the most expressive of instruments, the violin and its family, unknown to the ancients, was fabricated in her cities in a manner that time has not improved upon. The modern art of singing dates from the institution of the Italian opera at Florence, and one of the pioneers of that reform was the father of Galileo. It grew out of the study of the Greek drama and the desire to revive its recitative or declamation in the Italian language. From timid beginnings have grown the bold splendors of the present opera. The Italian language in its poetry, both as regards metre and syllabication, is the best adapted for song. Its suavity and ease in this regard are incomparable, save perhaps in the Hindoo dialects. A race of singers grew up in Italy who gave method and laws in song to the European world. The musician who had not visited Italy was not considered as having completed his studies. But the contemplative genius of northern Europe, allied to the fiery temper of the south, was necessary to produce the musical achievements of the present day.—Musical composition as it now exists may be considered under these divisions: the church, the drama, the concert room, and the drawing room. The music of the church includes the mass for the Roman Catholic service, which is the most passionate, and in the hands of many composers takes a dramatic form; and indeed, when we reflect on such intense words as the *Agnus Dei* and *Gloria in Excelsis*, no other form is left for it. Beside the mass, there are the chants, litany, and varied occasional music. The Protestant service, though lately much changed, especially in the United States, as regards its music, has rejected the dramatic style of the mass, and restricted itself chiefly to hymns and psalms of sober temper; and in the Episcopal church anthems and harmonized declamation by the choir are added. The Methodist church has taken secular airs and set religious words to them, thus following an old fashion of the Roman Catholic church. The hymns of Luther exercised a marked influence in giving simplicity and directness to Protestant church music; the involved fugue style, that is, one part chasing another in deliberate confusion through the vocal harmonies, having been much in vogue before him. In reading the old church music, one is struck with the fact that merit with the composers seemed to consist in shapeless unrhythmical passages, several moving together. The requirements of dramatic song worked a reformation in one direction, and those of congregational singing in another. Under the head of church music, oratorios may be considered. These are substantially operas of more easy composition, the composer not being obliged to regard entrances and exits, the narrow peripatetics of the footlights, and the risings of the pit in applause at the end of every act. The oratorios of each period indicate the musico-dramatic state of the art. When orchestration was poor in development, when tawdry ornamentation took the place of well defined melody, and fugues had not yet given way to the perfected and various forms of vocal and instrumental composition, we find the oratorio in the same condition as the opera. With the improvements in dramatic expression oratorios have been enhanced in value. The oratorio has been sustained in the United States by the enthusiasm of the performers, mostly amateurs, rather than by the solid support of the public.—The music of the drama, which may now be mentioned, was during the greater part of the 18th century drawn from Italy. Handel wrote to Italian words, and in the main followed, though he improved upon, the taste of the day. (See HANDEL.) The great fault of his time was excessive ornamentation, so that in the hands of most composers the opera was merely a stage for exhibiting the abilities of the singers. By degrees reforms were introduced. Among the reformers was Gluck, who, after composing many years in Italy in the fashion of the day, sought to render music purely declamatory. Another musical reformer was Jomelli, born near Naples in 1714. Mozart's father, in one of his letters, speaks of Jomelli's music as being "too Gothic." It is usual to draw very wide distinctions between Italian and German music, and there is much partisanship as regards the relative value of the schools. It is true, however, that at no time have the most learned musicians been wanting in Italy—those whose music was "too Gothic," if they chose to make it so, for the rapid business and squarely melodic declamation of the stage; and that, whether we look at Italy as regards music for the church, for the opera, or that demanding great instrumental skill, we find her in the first rank. The music of the opera gradually improved, receiving great accessions from illustrious composers of different nations. Among the immediate successors of Mozart, Spontini holds an illustrious place. In his *La Vestale* there are inspirations which would pass for Rossini's, so identical are the effects. Cherubini may be cited as the composer who particularly linked the styles of the close of the last century with those of this. This most eminent writer produced operas which held the possession of the stage, and was equally successful in his sublime church music. He competed with Reicha moreover in his profound treatises on the fugue. Supremacy cannot be accorded to any composer beyond another in that or any other musical walk. In brilliant fluency Rossini excels all others who have written for the Italian opera; but then it must be remembered that he was preceded by Mozart, whose operas were written to Italian words and with melodies identical in shape, in cæsural pauses, in syllabication, and in relation to the chords, with the Italian school of Paesiello, Piccini, and Cimarosa, and who must be considered an Italian composer as regards the opera. The most perfect operas are those of the 19th century, partly because the increased skill of the orchestral players enables the composer to delineate character in his instrumental painting. Execution on all instruments has immensely improved in this century, as well as the excellence of the manufacture of wind instruments; and these artistic and mechanical superiorities impart a splendor to the orchestra to which it was before a stranger. The theory and practice of vigorous accentuation and climax have been perfected; and the singer accordingly who wishes to sway his auditory, chooses an opera of this century and not one of the last. Whatever tendency there may have been to avoid excessive ornamentation in singing, and maintain the theory of Gluck, was set aside for many years by the genius of Rossini. Mozart, who indulged occasionally in ultra-florid music, or several notes rapidly sung to a syllable, was not brilliant in that department; Rossini was, and his ornate arabesque work not being of the old pattern, that is to say, merely roulades, following a plain melody, or even without any such distinct melody, but being integrated with the melody itself, he struck the secret of popularity, and swayed Europe musically. His sense of rhythm being ever present, and his persistence in the *ictus* of the measure exceeding all his predecessors, he allured and excited his auditors to a degree before unknown. The voices, whether base, tenor, contralto, or soprano, were made to do this ornate work, which was lavished on serious and comic scenes alike; and yet with all this profusion of notes there are ever present touches of severe simplicity, which was completely exemplified when he wrote for the French stage and presented *Guillaume Tell*. His *Mosè in Egitto* also abounds in sublime passages of absolute simplicity. In the church music produced by Rossini there are the same contradictions; his *Stabat Mater*, though broad and lovely, is defective in the austere, heart-broken expression proper to the grand desolations of the theme. While Rossini was electrifying Europe, there arose a consummate genius in Germany, Carl Maria von Weber. Grasping all the extensions of orchestration in execution and effect, this composer wrote overtures of larger texture and clearer dramatic personification than any predecessor, and infused into his operas qualities which placed him at the head of a new school, the romantic. His vocal writing often wants fluency, though this is less apparent in *Der Freischütz* than in his *Euryanthe*; had his metres been better, his music would not have been amenable to this charge. But the transcendentalism of his music was the most daring ever attempted. In a certain class of passionate expression he was without a rival; certainly no such intense womanly portraiture of love was drawn in music before his *Agatha*. More than this, new problems of harmony can be found in his weird scene of the wolf's glen, which has a direct affinity and equal rank, so far as dramatic music and poetry may be compared, with Shakespeare's witches in "Macbeth." The ordinary laws of harmony are here freely set aside by Weber to produce supernatural effects; and the terrible result is coördinate with the philosophy of the design. Many of the operas produced by eminent composers for the French stage, among whom Meyerbeer stands preëminent, combine grace, brilliancy, breadth, and grandeur. "The Huguenots," by Meyerbeer, may be cited as the grandest subject for a musical drama of any on the stage. "William Tell" is wonderful for its breadth, and the dazzling variety of its characteristic national music. A single point in the trio, the chords under the phrase *mon père*, was an invention largely affecting subsequent dramatic expressions. The benediction of the poniards in "The Huguenots" is copied from this Rossinian flash. In *Masaniello* Auber imparted a popularity to characteristic Neapolitan music which carried it round the world, and made the barcarole a household musical word. The romantic, tender, and impassioned strains of Bellini gave a new impulse to the Italian music, and established a greater popularity for it both through Italian words and English translations than it had hitherto enjoyed. The directness of his melodies, his use of a few notes instead of many for masculine voices, enabled amateurs to seize hold of them, who were unable to cope with the floridities of Rossini. In this new school Donizetti was a peer of Bellini, and the author of the strains of *Edgardo* has never been surpassed in popularity. The latest accession to Italian music is Verdi, combining clear, strong, well defined melodies, with a perfect apprehension of climax, intuitive dramatic perception, and knowledge of stage business, but with certain errors, such as overstraining the voice for effect, and soon ruining it.—It is worthy of remark that no earlier secular piece of music in parts for voices can be found than one with English words: "Sumer is i-cumen in." This would prove that the northern islanders had made as much progress in harmony as their southern neighbors centuries ago. That music was much cultivated in England in the time of Queen Elizabeth there is ample evidence, and gentlemen then were commonly able to perform on the instruments in fashion. The gradual change from Catholicism to Puritanism, and the destruction of the theatre, owing to the spread of more sombre tastes, appear to have caused music to fall in public estimation for a period; and the exceedingly coarse and ignorant manner in which Handel, Buononcini, and the compositions of their day were spoken of by wits and poets, would argue a national decline in a love for the art. Shakespeare, on the contrary, glorifies music in many passionate passages. Indeed, the dramatist's accurate knowledge of music makes him introduce into "King Lear" a technical phrase which sorely puzzled the academic commentators. The music of the old English composer Purcell, though frequently crude, is marked by a vigor and a correct art of word-setting that formed the basis of Handel's oratorios. Purcell had probably no contemporary superior. The music of "Macbeth" by Locke, though homely, is genuine in its way, and does honor to his memory. Dr. Arne, in the 18th century, made a brilliant though practically unsuccessful effort to rival the Italian opera, by the introduction of recitative song after the Italian fashion. One of the special glories of the English school of music is glee writing. In this a long list of worthies appears, among the later of whom Sir Henry Bishop was particularly distinguished. The genius of Handel confirmed the practice of writing in the fugue style in music to English words. By degrees, however, this was followed by other and more dramatic forms. In fugues the base has as much motion as the treble, giving as it does the leading melody equally with it; and this constant sub-movement is evident in the other pieces of vocal music where the fugue dominated. By degrees the base adopted more of the repose due the foundation of music, leaving the melody to float gracefully and passionately above it; and as a sequence the base itself took occasionally a cantabile form as exhibited in solos for the voice and instrument. Beethoven did much for this style in his instrumental music, the increasing taste and ability of violoncello and double base players permitting it. A single instrumental performer who excels his predecessors is sufficient to change or improve the style of composing for his instrument. The British composers, amid much public neglect, the fashion being set for foreign music, have steadily advanced with the steps of the art, and excel now in every department. The names of Macfarren, Wallace, Balfe, Rooke, and others, are eminent among music-lovers. The great drawback to English vocal dramatic writing has been defective versification, wanting alike in softness, continuity or fluency, and variety. The same monotony has marked other than lyrical poetry; lately, however, there are changes for the better in this department. Among the special beauties of British music must be named the ballad. The Scotch, Irish, Welsh, and English ballad airs are all different in character. They have had the advantage of new words written to them by the best poets. Some of them steadily resist changes in fashion, and are as popular now as ever. Eminent composers, Haydn, Beethoven, and others, have harmonized these national lyrics and set accompaniments to them. The choicest Irish airs were collected by Thomas Moore and allied to his beautiful inspirations, Sir John Stevenson making the musical arrangements. All the other European nations have their national songs, differing in characteristics; and these underlie the varying qualities of the composers to a greater or less degree. The most esteemed writer of the music of songs, of a character which pleases refined ears, is Schubert, whose genius is remarkable. It was displayed also in orchestral and quartet music. Robert Schumann is among the eminent names of the composers of German songs, and his genius also took the wider field of symphonies and piano music; in all these he essayed original walks. Among the German operatic composers of the present time whose works excite attention is Wagner. He also holds a fluent pen in expounding his theories. He lays much stress on orchestration, in which he excels, as he also does in the logical adaptation of words to music. The most popularly effective piece in his opera of *Tannhäuser* is a march with chorus, in which the melody is well defined. The absence of clearly cut, square melodies in the vocal part generally of this opera is not compensated for by any new theory, however earnestly enforced. It may be assumed that the composer who can produce the most effect with the simplest means will do so; and melody is as important now as when Haydn so insisted on it. The "progressive school" has succeeded very often in making what ought to be beautiful, grim and ghastly. Among the French composers the name of M. Halévy stands eminent, his opera *La Juive*, produced 30 years ago, having maintained its place with undiminished effect, though after this he was less successful. M. Herold won a place in the first rank of French composers by his opera of *Zampa*. M. Hector Berlioz has devoted an enthusiastic life especially to instrumental music, and in the romantic school has evolved new effects. He is also the author of an elaborate work on the art of instrumentation. M. David made a great success in his ode-symphony *Le Desert*, in which recited strophes and vocal and instrumental music, with an oriental coloring, produce a most pleasing effect. The German composer Spohr, lately deceased, through a long life exhibited his genius in every possible form. His *Faust* has much that is kindred in temper with *Der Freischütz*. His *Jessonda*, in another style, is equally artistic. To the eye these works are disfigured with the pedantry of remote modulations clouded with "accidents"—a show of learning which does not add to their effect. Spohr's oratorios do not appear to hold their place in England since those of Mendelssohn were written. While there has been much learned discussion in Germany as to what music ought to be, the public of Vienna equally with that of New York has been pleased with the strains of Flotow, whose style is most akin to the comic operas of Auber. In the opera of *Martha* especially there is a lightness, grace, and piquancy which will compare favorably with the French comic school. Costa, the celebrated orchestral leader, lately achieved a great success in the production of an oratorio called *Eli*, an elegant and imposing work. Composition for the orchestra received its greatest development at the hands of Haydn. This illustrious composer when a boy had the benefit of instruction from Porpora, the great Italian composer, from whom he derived his musical vocal knowledge; and he learned the art of setting words to music from Metastasio the poet. But with all these advantages he failed as an operatic composer, while he succeeded in orchestral music and oratorios. His genius for melody was so great that, although he closely followed Handel as to time, his melodies are a century in advance of that eminent composer in point of grace and symmetry and essential beauty. His muse was kindred with Mozart's, and years have only added to his fame. In symphonic writing in many respects he has not been excelled. In breadth and depth, however, the palm for that department has been awarded to his successor Beethoven.—The form of the symphony is derived from that of the piano sonata or violin quartet; as a general thing, it is composed of 4 movements: an allegro, usually the principal movement; then a slow movement; then a minuet, or old dance tune; then a rondo, or finale, of quick movement. There is no organic completeness in this design, so far as the number of movements is considered. They are all distinct, and there might as well be one movement, or 40 if so many could be compassed. But symphonies and quartets were composed according to this method as though according to an irrefragable law. Their structure is: a theme or melody in a given key, say C major; a passage leading to another key, G major, the most closely related to the first, with a strong assertion of the chord of the seventh or the fifth of G, which is D, before the second theme or melody is taken; then follows some accessory and climacteric matter, and we arrive at the end of the exposition of the primary ideas. The second part is taken up, generally after the first is repeated, but without stopping; and now commences what is called the development of ideas, in which the primary ones are set off in various ways, by new harmonies, or accessories of melody, by double counterpoints (that is to say, placing phrases indifferently as the base or treble), by modulations, by instrumentation, and so forth; and this runs into a repetition of the original melody, to which the second melody is added, but this time in the same key with the original; and the whole is crowned with a musical peroration in which appear the most ambitious flights and climaxes. The development of ideas is peculiar to instrumental music, for on the stage the business is too rapid to admit of it except slightly. This privilege to write untrammelled, and the absence of verbal and vocal restraints, make symphonic writing easy in comparison with that of the opera. The second movement of the symphony is a clear melody, with accessory and developed matter, and the melody repeated with a short peroration. The third is the minuet, measured and somewhat developed. In Beethoven's symphonies the minuet is set aside for the *scherzo*, or playful movement, in which piquancy is aimed at. The last movement of the symphony is a melody or theme with accessories, its repetition, and a peroration. Sometimes the last movement is the most important. In the choral symphony of Beethoven the voices are added. (See BEETHOVEN.) Quartets and sonatas are on the same plan as symphonies, but generally briefer, as the variety of instrumental coloring in an orchestra warrants greater length. —Chamber music, or that for the drawing room, received a great impulse from the sonatas of Corelli, an Italian composer who wrote in the early part of the 18th century. Carl Emanuel Bach wrote sonatas the worth of which cannot be overpraised. Many eminent composers—Clementi, Dussek, Steibelt, Hummel, Von Weber—followed Haydn and Mozart in sonata writing; and the large hand of Beethoven was also most distinctly felt there. With all this genius there was something wanting in music for the pianoforte. About 1840 this want was supplied, when Thalberg arose and began his piano illustrations of dramatic music, in which he gave the precise vocal pitch of the airs on the piano, and overarched them with a dazzling spray of sound that infused new life into the instrument. Liszt also added his *tours de force;* and mention should be made of Herz, whose brilliancy was only eclipsed by that of Thalberg. The germ of Thalberg can be found in the extraordinary violin playing of Paganini—that is, the air vocally treated, and set off with arpeggios. The later composer for the piano who has made the most distinct impression by his genius was Chopin; he was redolent of ideas, and master of the mode of setting them off to advantage. As a poet for the instrument he held a first rank; and his music has all the brilliancy which characterizes the modern dramatic school. The compositions of Mendelssohn for the piano are among the best legacies of his genius. In other instrumental music the skill of the present day has reached such a height as to induce the belief that it has culminated. The principal performers in Jullien's orchestra as exhibited in the United States several years since—König on the cornet, Bottesini on the double base, and Lavigne on the hautboy—left nothing of excellence to be desired.—The past and present condition of music in the United States merits a special word. At the close of the 18th century, during the administration of Washington, the institution of a theatre at the seat of government, which was then at Philadelphia, drew together some English actors, of whom tradition speaks favorably as singers of their national music. Among the rest, Incledon, the great English tenor, enlarged the popular ideas as to song. Afterward, in New Orleans M. Davis established an opera company of much merit, and an orchestra to match. The appearance of an Italian opera troupe in New York about 1825 worked a revolution. This troupe was brought here in part through the instrumentality of Signor Da Ponte, the friend of Mozart and the writer of the libretto of *Don Giovanni*, who lived for some time in New York. The director of the troupe, Signor Garcia, was a great artist, and had all the traditions of the old Italian school. His daughter, Madame Malibran, showed immense talent, and her fame subsequently filled Europe. A few years afterward another Italian company, composed of admirable artists, further influenced the musical taste of the public. Mr. and Mrs. Wood next came, but it was not until the latter appeared in a translation of *La sonnambula* that public enthusiasm glowed at her performances. She subsequently appeared in *Norma* translated, and performed in Philadelphia with surpassing splendor; for although the theatre was small, the orchestra numbered 50, the chorus 70, and the stage decorations were even superior to those of the *Italiens* at Paris. Mr. and Mrs. Seguin, Mr. Frazer, Miss Shirreff, Mrs. Austin, Miss Pyne, Mr. Guilmette, and others contributed greatly to spread a taste for opera through the English language. An attempt was made to build a grand opera house in Philadelphia, but failed at the period of the financial calamities about the year 1840. Since then an opera house has been built there which is considered a model of completeness. Boston had the honor of erecting the first very large opera house, a splendid structure and worthy of the intellectual culture of that city. The opera house of New York is perhaps the handsomest in the world, though it is bad as to interior shape. Cincinnati has also built a fine opera house, said to rival any for its decorations. A new one has lately been erected in New Orleans, and Brooklyn has one in process of construction. The building of these houses was preceded by the visits of the best European artists, and now the American public have nothing to hear superior to what they have heard. In orchestras, especially in New York, there have been immense improvements. The philharmonic society of New York numbers nearly 100 experienced performers. In military music New York holds a first rank. In the manufacture of musical instruments the United States rival Europe. At the exhibition of the New York crystal palace it was found that the American makers were as good as the European. Pianofortes of the best quality are now produced, and the annual sale is estimated at from $12,000,000 to $15,000,000. The manufacture of church organs is carried on to an enormous extent. In the printing or engraving of music a great traffic is maintained, but chiefly in sheet music, or short pieces. Several young ladies of American birth have appeared on the Italian stage, and some of promise are now studying in Europe. One of them, Miss Adelaide Phillips, a contralto, has achieved eminence as a dramatic artist. Mr. Gottschalk, an American, has acquired a European reputation as a pianist. In composition, Mr. Bristow has written symphonies with eminent success, as well as vocal music. His latest work, a *Te Deum*, is a carefully executed classic. Mr. Robert Stoepel has composed a vocal and instrumental work, on Longfellow's "Hiawatha," full of appropriate portrayings and most minutely elaborated. In musical literature there are several flourishing periodicals.

MUSK, a concretionary substance of peculiar and most powerful odor, which is secreted in a projecting hairy sac or bag between the umbilicus and the prepuce of the male of a small Asiatic animal, shaped like a deer, and named by Linnæus *moschus moschiferus*. The sac is from 2 to 3 inches long, and contains from 2 to 3 drachms of musk, which when first removed is soft and almost liquid, but afterward hardens and dries into a substance resembling dark-colored snuff, coarsely granulated. The musk deer, as the animal is commonly called, is found in the central mountainous regions of Asia that lie between India and Siberia, frequenting the colder portions of these countries near the line of perpetual snow. It is a timid animal, coming out for food chiefly at night, and is remarkable for its agility in leaping among the rocks. The hunters, who pursue it for the sake of its skin as well as for its musk, immediately cut off, tie up, and dry the sac, or, as it is called in commerce, the pod; and in this state the article is transported. In China, where it is chiefly supplied to commerce, the pods are packed for shipment in catty boxes holding from 20 to 25 each. A single pod being worth from $15 to $18, the adulteration of the article is a profitable operation; and the Chinese practise it with great skill, and to such an extent that genuine musk is scarcely known in trade. Dried blood, having the appearance of musk, is introduced into artificial sacs made of the skin of the animal, and a variety of other substances are added, with which enough musk is intermixed to give its strong odor to the mass. Musk of different qualities is also mixed together by the Chinese with the intention of passing off the whole as the best. That of Tonquin, which is obtained only from China, is far stronger than that of southern Siberia, which is also carried to China as well as to Russia. The Siberian article is received to some extent through Europe. The pods are larger and more elongated than the Chinese, and the musk is in finer grains, and possesses a fetid odor; while the Chinese is very strongly scented, and has an odor somewhat ammoniacal. A variety exported from Calcutta, where it is brought from Thibet and the Himalaya mountains, is esteemed better than the Siberian, but inferior to the Chinese.—Musk is familiarly known as a perfume of most penetrating and lasting odor. According to the accounts of Tavernier, Chardin, and other travellers in Asia, it is so powerful when first taken from the animal that those exposed to its influence are in danger of hæmorrhage from the nostrils, even when the nose and mouth are protected by coverings of linen. Headache is often produced by approaching the sacs even in the open air. The substance was formerly in high repute as a medicine, and is still largely used by eastern nations and to some extent in civilized countries, being administered in the form of a pill or emulsion. Its use is as a stimulant and antispasmodic, and its effects have been found highly beneficial, among other instances, in dangerous cases of infantile convulsions caused by spasm of the intestines. Musk is however chiefly of value as a perfume; and it is the most remarkable of substances for the diffusiveness and permanence of its odor. A whole room has been known to be perfumed with it for 30 years, and no perceptible loss of weight in the musk was occasioned thereby; and specimens known to be 100 years old were as strong as the fresh article. One part communicates its smell to more than 3,000 parts of inodorous powder. Its taste is disagreeably bitter and acrid. Its chemical composition is variable and exceedingly complicated. A volatile compound, probably of ammonia and a volatile oil, has been found by Guibert and Blondeau in the proportion of 47 per cent. Beside this, they separated a large number of other ingredients.

MUSK DEER (*moschidæ*), a family of small ruminants, living in flocks on the continent of Asia and the larger islands of the Indian archipelago. They have no horns in either sex and no lachrymal sinuses, but the males have two elongated canines in the upper jaw, used as instruments of defence and offence; the legs in some are exceedingly slender; the name is derived from the presence in the males of some of the species of a bag or pouch beneath the abdomen, which secretes the powerfully odoriferous substance known as musk. The true musk deer (*moschus moschiferus*, Linn.) is of about the size of a small roebuck, with shorter legs and thicker body; the color is reddish brown, paler below and on the inside of the limbs, with throat and streak on each side of the neck white, and sometimes whitish gray on the sides; the hair is stiff, long, and curled; the canines project an inch beyond the closed mouth; the hoofs are long and sharp, well adapted for the rocky places in which they delight to dwell in the manner of the chamois; the ears are long and the tail short. It is shy, very active, and not easily taken; it is pursued chiefly for the odorous secretion, which is strongest and most abundant during the rutting season. This species is distributed over the mountainous regions of central Asia, especially Thibet and China, extending even into northern Tartary. The flesh is sometimes eaten, and the skins are prepared as articles of clothing and as leather. A species is said to exist near Sierra Leone, on the west coast of Africa.—In tropical Asia and its islands are the allied genera *tragulus* (Briss.) and *meminna* (Gray), containing the most diminutive of ruminants, some of them no larger in the body than a hare. The napu musk deer (*T. Javanicus*, Briss.) has shorter ears, smooth hair, very slender legs, with the supplementary hoofs at a greater distance from the ground; like the rest of the genus it has no musk sac; it is about the size of a full-grown hare, of a glossy ferruginous brown color, lighter along the back; throat, chin, under parts, and inside of the limbs white; on the fore part of the chest are 3 broad, white, radiating stripes, separated anteriorly by bands of blackish brown; and a white line passes back on the cheek from the lower lip. It is commonly called the mouse deer in the straits of Malacca. It inhabits Java and Sumatra, frequenting thickets near the sea shore, and feeding principally on berries of a species of *ardisia;* it is easily tamed, when taken young. The kanchil (*T. pygmæus*, Briss.) is of the size of a small rabbit, of a delicate and elegant shape, and very active; this is the species which, when pursued, is said to leap to the branches of a tree, hanging suspended by the canines until its enemy has passed by; the flesh is excellent. The color is reddish brown on the back, bay on the sides, white below, with 3 white streaks under the throat; it is common in the peninsula of Malacca and the neighboring islands, where it is captured in traps or by throwing sticks at the legs when it comes to feed on the sweet potatoes at night; it is very cunning, feigning death when caught in a noose.—The Ceylon musk (*meminna Indica*, Gray) is about 17 inches high, an elegant, graceful, and gentle animal, whose flesh is excellent food; the ground color is cinereous olive, spotted, striped, and barred with white; it lives in the jungles of Ceylon and of India.

MUSK OX (*ovibos moschatus*, Blainv.), a ruminating animal found in the arctic regions of America, seeming to form, as its generic name imports, the connecting link between the ox and the sheep. It is about the size of a 2-year-old cow, 5¼ feet from the nose to root of tail, and weighs about 700 lbs., 2 or 3 times as much as the reindeer; the head is large, and surmounted by broad flat horns in both sexes; in the males the horns meet on the median line of the head, from which they bend down on the cheeks, and then turn outward and upward, much as in the gnu; dull white and rough on the basal half, they are smooth and shining beyond, and black at the point; the horns of an old male measured by Dr. Kane were 2¼ feet from tip to tip, and each 1⅜ feet to the median line of the head. The nose is very obtuse, with only the small space between the nostrils naked; the ears not perceptible, the tail concealed by the hair, the legs short, and the hoofs broad and inflexed at the tips. The hair is so long that it almost reaches the ground, so that the animal looks more like a large sheep or goat than an ox; the color is brownish black, more or less grizzled. The musk ox frequents arctic America from lat. 60° to 79° N., and from long. 67° 30′ W. to the Pacific coast; though Dr. Kane saw no living specimens, the skeletons and probable footmarks were so numerous that he was inclined to believe the statement of the Esquimaux that these animals had been recent visitors, and probably migrated from America to Greenland; they are generally seen in herds of 20 or 30, in rocky barren lands, and feed on grass and lichens; the rutting season is about the end of August, and the young are born toward the first of June. Though the legs are short, they run very fast, and climb hills and rocks with great facility; they are difficult to approach except by the concealed hunter; the males are irascible, and often dangerous when slightly wounded; the flesh, when fat, is well tasted, but when lean smells strongly of musk, as does the whole animal, whence its name; the hair is long and fine, and, if it could be obtained in sufficient quantity, would be useful in the arts; the skin is made into articles of dress by the Esquimaux. The tracks made by this animal in the snow are much like those of the reindeer, somewhat larger, and can be distinguished only by the skilful hunter. Only one living species is known, and the geographical distribution of this is not precisely ascertained. It is very rare in collections, the only specimen in the United States being in the museum of the Philadelphia academy of natural sciences, a stuffed skin presented by Dr. Kane. It is said to occur fossil at Eschscholtz bay on the N. W. coast. The *bos Pallasii* (De Kay) of North America and the fossil oxen found in various parts of the United States, coming near the musk ox, have been described by Dr. Leidy, under the name of *boötherium*, in vol. v. of the "Smithsonian Contributions to Knowledge" (1853), as the *B. cavifrons* and *B. bombifrons*; these probably, he says, were clothed in a long fleece, and inhabited the great valley of the Mississippi just anterior to the drift period. The Siberian and northern European fossils probably belong to the genus *ovibos*.

MUSKINGUM, a S. E. co. of Ohio, intersected by the Muskingum river and drained by Licking river and other branches; area, 665 sq. m.; pop. in 1860, 43,873. It has a diversified surface and fertile soil, and contains bituminous coal, iron ore, and salt, the last procured by deep boring into the whitish sandstone, or salt rock. The productions in 1850 were 415,847 bushels of wheat, 1,144,855 of Indian corn, 281,748 of oats, and 194,866 lbs. of wool. There were 6 establishments manufacturing 139,000 bushels of salt annually, 20 flour mills, 19 saw mills, 4 iron founderies, 1 cotton and 3 woollen factories, 14 tanneries, 5 printing offices issuing 1 daily, 1 tri-weekly, and 6 weekly newspapers, 105 churches, 1 college, and 15,800 pupils attending public schools. It is intersected by the Ohio canal and the central Ohio railroad; and the Cincinnati, Wilmington, and Zanesville railroad has its terminus at the capital, Zanesville.

MUSKINGUM, a river of Ohio, formed by the junction of the Walhonding and Tuscarawas, which rise in the N. part of the state and unite at Coshocton, whence it flows in a S. E. direction for about 110 m. through Muskingum, Morgan, and Washington counties, and enters the Ohio river at Marietta, its mouth being 225 yards wide. At Zanesville it is obstructed by falls. Here there is a canal with a dam and locks. It is navigable for steamboats to Dresden, 95 m. from its mouth, at which place there is a side cut to the Ohio canal.

MUSKOGEES. See CREEKS.

MUSKRAT (*fiber zibethicus*, Cuv.), an American rodent, the only species of its genus, well known for its aquatic habits; it is also called musquash, musk beaver, and ondatra. The dentition is: incisors $\frac{2}{2}$, and molars $\frac{3-3}{3-3}$, in all 16 teeth. The body is rat-like, the head and neck short; the eyes and ears very small, the latter having no special arrangement except their dense fur to exclude the water; the upper lip not cleft, and hairy between the teeth and nose; lips thick and fleshy; nose thick and obtuse; 6 horizontal rows of whiskers, with some over the eye and under the chin; the legs short, and the thighs hid in the body; the claws compressed and incurved, the 3d toe the longest on the fore feet and the 4th on the hind feet; the hind feet appear slightly twisted, the inner edge posterior to the outer, by which the animal can "feather the oar" when the foot is brought forward in swimming; all the feet are partly webbed, naked below, covered with short hairs above, and have their edges more or less margined with bristly fringes; the tail is ¾ as long as the body, compressed, 2-edged at the end, scaly, with short thin hair; the fore feet are 4-toed, with a wart-like thumb, and the hind feet 5-toed. The head and body are from 13 to 15 inches long, and the tail 9 or 10 inches; the general color is ruddy brown above, darker on the back, and cinereous beneath; some specimens are very dark brown; the long hair is fine, compact, and silky, with coarser hairs intermingled, especially above. The dentition is arvicoline, but the characters of the feet and tail, the larger size, and the great expansion of the temporal bones over the head, are sufficient to distinguish it. It is more extensively distributed over North America than the beaver, but, unlike the latter, does not disappear at the approach of civilization; it is found from the Atlantic to the Pacific, and from the Rio Grande to arctic America, even on the N. W. coast; it is strictly an American animal, the skins obtained from Kamtchatka having been procured from the tribes on the American side of Behring's straits; fortunately for the rice planter, it is not found in the alluvial lands of Carolina, Georgia, Alabama, and Florida, though it extends much further south. Its favorite locality is a grassy marsh or bank of a lake or sluggish stream; nocturnal in habit, it is occasionally seen in the daytime swimming a stream or diving into the mouth of its hole; awkward on land, it is an excellent swimmer and diver, and very lively and playful in the water; it often swims 15 or 20 yards under water. The burrows are made in banks skirting streams, the entrances being under water, thence leading upward above the highest freshets; their winter galleries often extend 40 or 50 feet from the water, the central part containing the nests made of dried reeds and grasses; in swamps and marshy lands they sometimes raise mounds of sticks, twigs, and leaves from 2 to 4 feet above the surface, in which are their grassy beds large enough to accommodate several animals; the entrance to these is also under water, the surface of which they take care shall not be entirely frozen. The fur was once in great demand for hats, and hundreds of thousands of skins were annually exported for this purpose to Europe; their value is now only 10 to 25 cents each, as they are used chiefly for cheap furs; the animal, however, is generally killed when possible, to prevent the destruction of dams and embankments. They are not at all cunning, and may be caught in ordinary box traps, or in steel traps placed just under water and baited with sweet apples or parsnips; they are often dug out of their holes, hunted by dogs, and speared in their nests. Like the common rat, they are omnivorous, feeding on grasses, roots, vegetables, mussels and other mollusks, fruits, and even flesh; they are injurious rather from digging under embankments and undermining meadows than from destroying vegetation either in field or garden; great numbers are killed by lynxes, foxes, owls, and other rapacious mammals and birds. They are very prolific, bringing forth 4 to 6 young at a time, 3 times a year; they have a strong musky odor, which to most persons is less offensive than that of the mink, and far less so than that of the skunk; the flesh is considered palatable in some localities, though it is generally very fat.

MUSLIN, a thin kind of cotton cloth with a downy nap on the surface. The name is derived from the town of Mosul in Asia, where it is said to have been originally manufactured. The first importation of the article into England from India was in 1670, and in 1690 it was manufactured both in England and France. The muslins produced now by machinery in Great Britain, France, Germany, and Switzerland, rival in fineness of texture and beauty of finish those woven in the hand looms of the East.

MUSONIUS, Caius Rufus, a Roman stoic philosopher, who lived in the 1st century A. D. Nero banished him to Gyarus in 66, under pretence of his having been a party to the conspiracy of Piso. On the death of Nero he returned from exile, and when Antonius Primus, the general of Vespasian, was advancing against Rome, he joined the embassy sent by Vitellius to make terms with his enemies. After the downfall of Vitellius he became reconciled to Vespasian, who suffered him to remain in Rome. The only edition of the extant fragments of his works is that of Peerlkamp (Haarlem, 1822).

MUSPRATT, James Sheridan, a British chemist, born in Dublin, March 8, 1821. He removed at an early age to Liverpool, where his father established a large chemical manufactory, and while at school showed a predilection for the study of chemistry. At the age of 13 he travelled through France and Germany, and subsequently studied in the laboratory of Professor Graham of Glasgow, whom he accompanied to London. Before reaching the age of 17 he was sufficiently advanced to be intrusted with the chemical department in a large manufacturing establishment in Manchester, and he also published a lecture on chloride of lime. After an attempt to embark in business in America, by which he lost money, he repaired in 1843 to Giessen and became a pupil of Liebig, under whom for the next two years he applied himself indefatigably to the study of the higher branches of chemistry. His first original paper of importance was one on the sulphites, published in Liebig and Wöhler's *Annalen*, in which he proved the analogy between the sulphites and the carbonates, "a discovery," according to Berzelius, "overlooked by all previous investigators," and which procured him the degree of doctor of philosophy. In conjunction with Dr. Hofmann he subsequently discovered the important organic bases, toluidine and nitraniline. While at Giessen he edited Plattner's "Treatise on the Blowpipe," with many valuable additions. Between 1845 and 1847 he travelled over Europe, returning in the latter year to Giessen, where he discovered several remarkable bodies produced from the sulpho-cyanides of ethyle and methyle. In 1848 he returned to England, was married to Miss Susan Cushman, an American actress, and soon after founded a college of chemistry in Liverpool, of which he was appointed the director. In 1854, at the request of a publishing house in Glasgow, he commenced a dictionary of chemistry, published in Europe and America in parts, reaching a circulation of upward of 60,000 copies; it was completed in 1860 (2 vols. royal 8vo.). It was translated into German and French, and the number of subscribers in those countries exceeded 20,000. His remaining works are: "Outlines of Qualitative Analysis for Students;" papers on the selenites; on carmufellic acid, a new acid from cloves; on the influences of chemistry on the animal, vegetable, and mineral kingdom, &c.

MUSQUASH. See Muskrat.

MUSSCHENBROEK, Pieter van, a Dutch mathematician and natural philosopher, born in Leyden, March 14, 1692, died there, Sept. 19, 1761. He was educated at the university of Leyden, and in 1717 formed an intimacy with 'sGravesande, with whom he pursued a common course of study, and who subsequently coöperated with him in introducing the Newtonian system of philosophy into Holland. In 1718 he took his degree of doctor of medicine, and soon after visited England for the purpose of seeing Newton and making himself acquainted with his system. In 1719 he was appointed professor of philosophy and mathematics and professor extraordinary of medicine in the university of Doesburg, which he resigned in 1723 for the chair of philosophy and mathematics at Utrecht. Here he remained until 1739, refusing in the mean time a professorship at Göttingen, and about 1740 accepted the chair of mathematics at Leyden, which he filled during the remainder of his life. His works contain many original researches in experimental physics, and are among the earliest expositions of the Newtonian philosophy; the cohesion of bodies, the phosphorescent properties which many bodies acquire from exposure to light, magnetism, capillary attraction, and the size of the earth being among the subjects most successfully treated.

MUSSEL, a well known lamellibranchiate bivalve mollusk of the genus *mytilus* (Linn.). It belongs to the dimyarian group, or those having two adductor muscles, the anterior being small; the mantle has a distinct anal orifice; the foot is small, cylindrical, grooved, with many retractile muscles and a large silky byssus divided to its base; the shell is longitudinal and subtriangular, with the beaks terminal and pointed, dark-colored and shining. The common salt water mussel (*M. edulis*, Linn.) is from 1 to 2½ inches long and 1 inch broad, of a greenish black color externally and purplish and bluish white within. This species is esteemed as food in Europe; they lie together in large beds uncovered at low water, and are more widely spread and more easily obtained than the oyster; they are most esteemed in autumn, as in the spring or spawning season they are apt to disarrange delicate stomachs and to produce a cutaneous eruption; thousands of bushels are annually obtained for food and bait for deep sea fisheries, affording employment for hundreds of women and children, especially along the frith of Forth; they anchor themselves very firmly to rocks and stones by the horny threads of the byssus, directed by means of the foot, and attached by their broad disk-shaped extremities. The common mussel of New England (*M. borealis*, Lam.), by some considered the same as the last species, is eaten, fresh and pickled, in some parts of the country, but is more commonly used for bait or manure. The forms of these shells are very various, from accidental distortions or from the shape of the cavities and crevices in which they are commonly wedged. Several other species are described.—Another shell, commonly called mussel by the fishermen, is the allied genus *modiola* (Lam.), known in Europe as the horse mussel. Our common species (*M. modiolus*, Turton) is from 4½ to 6 inches long and from 2½ to 3 inches wide; the shell is thick, coarse, and rough, with the beaks subterminal; the color externally is chestnut or dark brown-pearly within. It inhabits deep water, attaching itself very firmly to rocks, from which it is torn in great numbers during violent storms; it is almost always more or less distorted, and has sea weed or some parasite attached to it; though too tough for food, it makes excellent bait for cod and other deep sea fishes, but is very difficult to obtain when wanted. Other species live in brackish water; some in Europe are said to burrow and make a nest of sand and fragments of shells.—The fresh water mussel (*anodon*) and river mussel (*unio*) are dimyarians, with a large foot not byssiferous in the adult; the hinge is toothed. The *A. fluviatilis* (Gould) has a thin, inequilateral shell, grassy green externally and lilac-tinted white within, and attains a length of 4½ inches; it is common in mill ponds and sluggish streams. Many other species of this genus, and of *unio* and allied genera in North America, have been specially described by Mr. Isaac Lea. Some of the unios, both in Europe and in this country, produce very fine pearls, and a short time since there was a general pearl hunting in many parts of the United States, which resulted in the finding of a few valuable specimens after an immense amount of generally unprofitable labor. The pearl mussel of Europe (*U. margaritifera*, Linn.) has long been famous for the ornamental excretions found in its shell, some of which have been of rare beauty, large size, and great value—"not orient pearls, but pale and wan."

MUSSET, Louis Charles Alfred de, a French poet, born in Paris, Nov. 11, 1810, died there, May 1, 1857. His father was M. Musset-Pathey, a government employee, known by his *Histoire de la vie et les ouvrages de J. J. Rousseau* (23 vols. 8vo., Paris, 1823–'6). Alfred Musset attended the collége Henri IV., where the duke of Orleans, son of Louis Philippe, was among his classmates. He is said to have written a tragedy as early as 1826, and in 1828 received a prize for a Latin dissertation on the "Motives of Human Judgment." He alternated for some time between the studies of medicine, law, and art, and was for a short period attached to a banking house, but was eventually encouraged in his predilection for literature by intercourse with Charles Nodier and Victor Hugo. His first work, *Les contes d'Espagne et d'Italie* (1830), revealed his poetic talent, and excited much attention and comment on account of the unbridled utterances of a fantastic and erotic imagination. His next important production, *Le spectacle dans un fauteuil* (1833), consisted of a tragical poem (*La coupe et les lèvres*), a graceful comedy or *imbroglio* (*A quoi rêvent les jeunes filles?*), and a kind of Byronic narrative in verse (*Namouna*), containing eloquent lines addressed to the Tyrolese, which were regarded by his admirers as the most classical production of the romantic school. More perhaps than any of his contemporaries he embodied in his effusions morbid and skeptical views of life, which mar to some extent the beauty of his exquisite poem *Rolla* (1835), and of his *Lettres d'un voyageur* and *Confessions d'un enfant du siècle* (1836), which latter he published after a tour in Italy in company with George Sand. Among the poems which he published in the *Revue des deux mondes* from 1835 to 1840, his ode to Malibran, his *Nuits*, *Lettre à Lamartine*, and *L'espoir en Dieu* were most admired. During the political complications in 1840 he answered Becker's German war song in regard to the Rhine with a poem entitled *Nous l'avons eu, votre Rhin Allemand.* The influence of the duke of Orleans had procured for him the office of librarian in the ministry of the interior; and he commemorated the death of that prince in 1842 in one of his most eloquent poems. He was deprived of his office after the revolution of 1848, but was restored to it after the establishment of the empire (1852), with the title of reader to the empress, and also succeeded Dupaty as a member of the academy. His *Poésies complètes* (3 vols., Paris, 1847–'9) comprise most of his poetical productions up to that period. He also wrote a great number of novelettes and tales, most of which were first published in the *Revue des deux mondes* and *Constitutionnel*, and afterward collected in 1846 and partly in 1847, and in *Contes* comprising *Mimi Pinson*, *Histoire d'un merle blanc*, and *La mouche* (1854). Among his best novelettes are *Emmeline* and *Margot*. He was less successful as a dramatist; several of his theatrical pieces, however, particularly *Un caprice* (3d ed., Paris, 1848), *Il ne faut jurer de rien* (1848), and *Il faut qu'une porte soit ouverte ou fermée* (1851), were received with great favor. A number of his dramatic compositions are included in his *Comédies et proverbes* (Paris, 1840, 1848, and 1851).—Paul Edme de, brother of the preceding, born in Paris, Nov. 7, 1804, is the author of many successful novels, as *Laura* (1835), *Anne de Boleyn* (1836), *Les nuits Italiennes* (1848), and *Jean le trouveur* (1849). His *Femmes de la régence* is regarded as one of his best productions, and has passed through several editions (4th ed., 1858). He has also published a great number of novelettes in the *Revue des deux mondes*, and in 1846 a translation of Gozzi's memoirs in the *National* newspaper. In 1848 he became the dramatic critic of that journal. His comedies *La revanche de Lauzun* (1856), and *Christine, roi de Suède* (1857), exhibit talent, but are deficient in dramatic effect.

MUSSULMAN and MOSLEM, corruptions of the Arabic *muslim* (pl. *muslimin*), "resigned to God," which signifies a Mohammedan. The proper plural of Mussulman is Mussulmans.

MUSTARD (It. *mostarda*), the pulverized seeds of the *sinapis alba* or white mustard, and the *S. niger* or black mustard. The name is also applied to the plants themselves, which belong to the natural order *crucifera*. Both species are indigenous to Great Britain, and are cultivated in gardens in America. The plants are annuals, and grow to a height of 3 or 4 feet, with spreading branches; they flower in the month of June. The seed vessels of the black mustard are smooth, those of the white rough and hairy. The seeds of the former are small, of a dark brown color, inodorous when whole, but when powdered and mixed with water give a strong penetrating odor and a sharp burning taste; those of the latter are larger, of a yellow color and less pungent taste. The flour of mustard is obtained by crushing and sifting both kinds of seeds, which are mixed together for this purpose. The first sifting yields what is called the impure flour of mustard, the second sifting the pure flour of mustard; the residue in the sieve is called dressings. Several peculiar chemical compounds have been extracted from the seeds of black mustard, among which are an acid called myronic, containing nitrogen and sulphur, and myrosine, which is analogous to emulsine, the albuminous constituent of almonds. These, when mixed together in cold or warm water, cause the development of the volatile oil of mustard, to which the peculiar properties of mustard are due. As heat, alcohol, and acids cause the myrosine to coagulate, and thus prevent the formation of the volatile oil, the use of hot water should be avoided in the mixing of mustard. A fixed oil of mustard is obtained from the dressings, which is mixed with rape and other oils. In medicine the whole seeds of mustard are sometimes used as a cathartic, and pounded or broken as an emetic. The flour of mustard is especially convenient where an emetic is suddenly required, as in cases of poisoning, having a very speedy effect. The quantity given is a large teaspoonful. The powder is invaluable as a rubefacient, and mixed with water is often applied in the form of a cataplasm, acting speedily and powerfully, though great care should be taken that it does not remain on too long, as vesication with ulceration may be the result. If a very speedy effect be not required, an equal portion of wheat flour or rye meal may be mixed with the mustard. The oil of mustard is also a powerful rubefacient, and has been given internally in cases of colic, but an over-dose is extremely poisonous.—Mustard was used by the ancients only as a medicine, and is spoken of by Theophrastus, Galen, and others, by the name of *νάπυ*. Its use as a condiment is spoken of by Shakespeare in the "Taming of the Shrew," act 4, scene 3, though it does not seem to have become common until the time of George I. Its adulteration is largely practised in Great Britain—so much so, that a special establishment is now provided at Deptford for supplying the royal navy with the pure article. The substances used for its sophistication are chiefly flour, turmeric, and gypsum, turmeric improving the color, and also being a cheap substitute. The plant spoken of as mustard in the New Testament seems to have been a different plant from our mustard. The *S. Persica*, a native of Syria belonging to the genus *Salvadora*, is, it is thought, the true mustard tree of the New Testament, in whose branches the fowls of the air could find shelter.

MUTINY (Fr. *mutin*, refractory, stubborn; *mutiner*, to rise in arms). A century ago, the word mutiny was, as we learn from lexicographers, often used in describing insurrection or sedition in civil society; but it is now applied exclusively to certain offences by sailors and soldiers. Properly it is the act of numbers in resistance of authority; but by statutes, certain acts of individuals are declared to be mutiny. The act of congress of March 3, 1835, defines mutiny or revolt in the following language: "If any one or more of the crew of any American ship or vessel on the high seas, or on any other waters within the maritime and admiralty jurisdiction of the United States, shall unlawfully, wilfully, and with force or by fraud, threats, or other intimidations, usurp the command of such ship or vessel from the master or other lawful commanding officer thereof; or deprive him of his authority and command on board thereof; or resist or prevent him in the free and lawful exercise thereof; or transfer such authority and command to any other person not legally entitled thereto; every such person so offending, his aiders and abettors, shall be deemed guilty of a revolt or mutiny and felony." The same statute provides for endeavors and conspiracies to excite mutiny. In construction of the act it has been held that mere disobedience of orders by one or two of the seamen, without any attempt to excite a general resistance or disobedience, and insolent conduct or language toward the master or violence to his person, if unaccompanied by other acts showing an intention to subvert his authority as master, are not sufficient to constitute the offence of endeavoring to excite mutiny. An indictment for this crime, it is said, must set forth a confederacy of at least two of the men to refuse to do further duty, and to resist the lawful commands of the officers. The offence of making a revolt was by the act of April, 1790, punishable by death. By the act of 1835, now in force, it is punished by fine not exceeding $2,000, and by imprisonment and confinement at hard labor for not more than 10 years, according to the nature and aggravation of the offence; while attempts to excite a mutiny are punishable by fine not exceeding $1,000, or by imprisonment not exceeding 5 years, or by both. Mutinous conduct in the army and navy is provided for by the acts of April 10, 1806, and of April 23, 1800. By the former, "any officer or soldier who shall begin, excite, cause, or join in any mutiny or sedition, in any troop or company in the service of the United States, or in any party, post, detachment, or guard, shall suffer death, or such other punishment as by a court martial shall be inflicted." Under the latter, "if any person in the navy shall make, or attempt to make, any mutinous assembly, he shall, on conviction thereof by a court martial, suffer death."

MUTTRA, a British district of the N. W. provinces, Hindostan, between lat. 27° 14′ and 27° 58′ N., and long. 77° 20′ and 78° 34′ E.; area, 1,607 sq. m.; pop. in 1853, 862,909, of whom about 70,000 were Mohammedans. The principal river is the Jumna, which flows for 95 m. within or along the boundaries of the district, but is not navigable in this part of its course except during the wet season. The surface of the district is almost uniformly level, and the soil of various qualities, but generally fertile. The climate is extremely hot in spring, but tempered a little in summer by the periodical rains. Wheat, barley, millet, pulse, oil seeds, sugar, indigo, cotton, tobacco, and opium are produced. The district was ceded to the East India company by the Mahrattas in 1803.—MUTTRA, the capital of the preceding district, is situated on the right (W.) bank of the Jumna, 97 m. S. E. from Delhi; pop. 65,749. It is picturesquely built on high ground in the form of a crescent, and was once well fortified. Flights of stone steps, or ghauts, adorned with temples, lead down to the river, which is accounted sacred by the Hindoos, and every day crowds of devotees frequent its banks to perform their religious rites. The streets are steep, narrow, and dirty, and rendered more difficult by deep ravines which run through the town. There are some striking ruined buildings, among which is a fort, having on its roof an observatory with astronomical instruments. One of the most beautiful edifices is a temple and dwelling house together, built by a former treasurer of the state of Gwalior, and approached through a richly carved gateway. The British have extensive cantonments about a mile distant. Muttra is held in great reverence by the Hindoos as the birthplace of Krishna, and is overrun with sacred monkeys, bulls, paroquets, and peacocks, which are fed and protected, but allowed to go at large in the streets. The wealth and importance of the place were formerly much greater than at present. Mahmoud of Ghuznee sacked it in 1017, and carried off or destroyed an enormous amount of treasure. Among other rich specimens of handicraft, he found 5 idols of gold with eyes of rubies, and 100 idols of silver, each as large as a camel could carry. At the commencement of the present century the town was taken by Sindia, who bestowed it on the French adventurer Perron; and in 1803 it was occupied by the British troops, and soon afterward ceded to the East India company by the treaty of Serjee Anjengaum.

MUZIANO, Girolamo, an Italian painter and architect, born in Acquafredda, near Brescia, in 1528, died in Rome in 1590 or 1592. He established himself in Rome about the middle of the 16th century, and became known as a landscape painter. His historical pieces were also popular, and one of them, a "Resurrection of Lazarus," painted for the church of Sta. Maria Maggiore, was highly commended by Michel Angelo, who called Muziano one of the greatest masters of the age. The churches of Rome and other Italian cities contain many fine works by him in oil and fresco; and there is also a celebrated "Christ Washing the Feet of his Disciples" in the cathedral of Rheims, which has been engraved by Desplaces. He was almost equally celebrated as a mosaic worker. His chief architectural work is the chapel of Gregory XIII. in St. Peter's. He was instrumental in founding the academy of St. Luke at Rome, the brief for the establishment of which he procured from Gregory XIII. Many of his drawings and pictures have been engraved.

MUZZEY, Artemas Bowers, an American clergyman and author, born in Lexington, Mass., Sept. 21, 1802. He was graduated at Harvard college in 1824, and at the Cambridge divinity school in 1828, and was ordained pastor of the Unitarian society in Framingham, Mass., June 10, 1830. He resigned this position in May, 1833, and became pastor successively of the Unitarian churches in Cambridgeport, Jan. 1, 1834; Lee street, Cambridge, in July, 1846; Concord, N. H., in March, 1854; and Newburyport, Mass., Sept. 3, 1857. He has published "The Young Man's Friend" (1836); "Sunday School Guide" (1837); "Moral Teacher" (1839); "The Young Maiden" (1840), which has passed through 16 editions; "Man a Soul" (1842); "The Fireside" (1849); tracts for the American Unitarian association; three lectures before the American institute of instruction; a "Lecture on Books and Reading" before the young men of Concord, N. H.; and reports on common schools and Sunday schools, beside many sermons and essays.

MYCALE (now *Samsum*), a mountain in the south of Ionia in Asia Minor. It is the W. extremity of Mount Mesogis, and runs out into the sea in a promontory called Mycale or Trogylium (now Cape S. Maria), directly opposite Samos, from which it is separated by a strait ¾ of a mile in width. This strait was the scene of the great naval victory of the Greeks under Leotychides and Xanthippus over the Persian fleet, Sept. 25, 479 B. C. On the N. side of the promontory was the temple of Neptune, where the Panionic festival of the Ionian confederacy was held. On or near the promontory, there appears to have been a city of the same name.

MYCENÆ, or Mycene, a city of ancient Greece, situated on a rocky hill at the N. E. extremity of the plain of Argos. It is said to have been founded by Perseus, and its massive walls were deemed the work of the Cyclops. It was the favorite residence of the Pelopidæ, and during the reign of Agamemnon was considered the principal city of Greece. From the period of the Dorian conquest its importance declined; but it still maintained its independence, and in the Persian war contributed its quota of troops. This brought upon it the enmity of the other Argives, who in 468 B. C. laid siege to Mycenæ, reduced it by famine, and destroyed it. It was never rebuilt, but its remains, near the modern village of Kharvati, are among the grandest and most interesting of the antiquities of Greece. Part of the walls of the acropolis, to the height in some places of 15 or 20 feet, are still standing, and at their N. W. angle may yet be seen the great entrance to the fortress, styled the "gate of lions" from the two lions sculptured in the stone above. The most remarkable of its other antiquities is the subterranean vault commonly called "the treasury of Atreus," consisting of two chambers, the larger of which is of conical form, 40 feet high and 50 feet broad, and has beside its doorway two columns with arabesque ornaments.

MYCONI (anc. *Myconus*), an island of Greece, in the Ægæan sea, one of the Cyclades, and lying E. of Delos and N. of Naxos, about 10 m. long and 6 m. wide; pop. about 6,000. Its highest summit has two peaks, whence Pliny calls it *dimastus*. Corn, wine, cotton, and figs are produced. In ancient times it was famous for the number of bald persons among its inhabitants.

MYERS, Peter Hamilton, an American novelist, born in Herkimer, Herkimer co., N. Y., in Aug. 1812. He has written several American historical romances: "The First of the Knickerbockers, a Tale of 1673" (New York, 1848); "The Young Patroon, or Christmas in 1690" (1849); "The King of the Hurons" (1850), republished in England under the title of "Blanche Montaigne;" and "The Prisoner of the Border, a Tale of 1838" (1857). He has also written five prize tales, for three of which, "Bell Brandon, or the Great Kentrip Estate," "The Miser's Heir, or the Young Millionaire," and "The Van Veldens," he received prizes of $300 each. Mr. Myers in 1841 delivered a poem on "Science" before the Euglossian society of Hobart Free college, Geneva, N. Y. He is by profession a lawyer, and resides in Brooklyn, N. Y.

MYLNE, Robert, a British architect, born in Edinburgh in 1734, died in London, May 5, 1811. In his youth he visited various parts of Italy, and at Rome gained the first prize in architecture at the academy of St. Luke, of which he was elected a member. He afterward settled in London, where he was the architect of Blackfriars' bridge, built at a cost of nearly £300,000. Among the various edifices which he repaired are Rochester cathedral and Greenwich hospital. For nearly 50 years prior to his death he was engineer to the New river water works company. His remains were interred in St. Paul's beside those of Sir Christopher Wren.

MYLODON (Gr. *μυλη*, mill, and *οδους*, tooth), a genus of gigantic fossil edentates established by Prof. Owen, and closely allied to the sloth, resembling megalonyx and megatherium; it is described in detail and figured in a monograph by Prof. Owen (London, 1842), to which the reader is referred for most of what is known concerning this animal and the megatherioid quadrupeds in general. The mylodon has the heavy form of the megatherium, with a dentition resembling that of the megalonyx; the molars are $\frac{5-5}{4-4}$, and are worn into flat surfaces; in the upper jaw, the 1st is subelliptical and separated from the rest, the 2d elliptical, and the others triangular, with the internal surface grooved; in the lower jaw, the 1st is elliptical, the 3d quadrangular, and the last the largest and bilobed, and the symphysis stronger than in the megalonyx. The head resembles that of the megatherium in its form, and has a strong descending process of the zygomatic arch; the extremities are equal, the anterior 5-toed and the posterior 4-toed; the 2 external fingers are without nails, and the others have large semi-conical and unequal claws; the acromion and coracoid are united, the radius turns around the ulna, the tibia and fibula are distinct, the heel bone long and large as in the other megatherioids. (See Megalonyx, and Megatherium.) The *M. Darwinii* (Owen) was discovered by Mr. Darwin in northern Patagonia; the symphysis of the lower jaw is long and narrow, with the 2d molar subelliptical, and the last with 2 furrows, of which the internal is angular; it is found from the pampas of Brazil southward. The *M. Harlani* (Owen) has the symphysis shorter and wider, the 2d molar square, and the last with 3 grooves, the internal one biangular; this has been found in Kentucky, Mississippi, Missouri, South Carolina, and Oregon. The *M. robustus* (Owen) is characterized by a short and wide symphysis, with the 2d molar subtriangular, and the last with 3 grooves, of which the internal is rounded. A fine and nearly complete skeleton of this species is now in the museum of the London college of surgeons, the one which forms the subject of the monograph of Owen above referred to; it was discovered in 1841 in the fluviatile deposits about 20 miles north of Buenos Ayres, recently elevated above the level of the sea. The skeleton is very robust; the trunk, shorter than that of the hippopotamus, ends in a pelvis as wide as and deeper than that of the elephant; the hind limbs short and massive, with feet as long as the thigh bones, set at right angles to the leg, and with the sole turned slightly inward; the tail as long as the hind limbs, very thick, and affording a firm support in the semi-erect position; the chest long and large, protected by 16 pairs of ribs, broad and strongly attached to a well developed sternum; the scapulæ unusually broad; arm bones thick and short, with strong processes for muscles; the bones of the forearm longer than those of the leg; the skull smaller than that of the ox, but long, narrow, with a truncated muzzle, and supported by a short neck of 7 vertebræ; dorsal vertebræ 16, with broad and high spinous processes nearly equal and having a uniform backward inclination. Such proportions are found in no living animals, and only in the megatherioids among fossils. The skull presented 2 extensive fractures, from which the animal had recovered; the air cells extend from the frontal and ethmoidal sinuses into the cranial bones, separating the 2 tables of the skull sometimes for the extent of 2 inches, forming a great protection against injury from falling limbs of trees. They were probably peaceful animals like the existing sloths, though able to inflict severe wounds by their sharp and heavy claws; the strength of the edentate muscles is very great, and must have been immense in all the megatherioids. While presenting the closest affinity to the small arboreal sloths, the mylodon, with its claw-armed inner toes, had the outer thick and stunted, and evidently enveloped in a kind of hoof, giving the power of standing and walking firmly as well as digging and seizing—in this respect marking a transition between edentates and pachyderms. It is now generally admitted that this animal commenced the process of prostrating trees by scratching away the soil from their roots, and loosening them from their attachments; then, seizing the branches or trunk, and supported on the hind limbs and tail, it swayed the tree to and fro like a mighty wrestler, and soon brought it to the ground to be stripped at its leisure; in case of meeting a tree too large to be uprooted, it is probable that some of the smaller species, as indicated by the inward turning of the soles, possessed the faculty of climbing to the larger branches within reach of the tempting foliage. In regard to the means of stripping off leaves, Prof. Owen, from the cavity in the mastoid process for the articulation of the hyoid bone, and the large size of the anterior condyloid foramina whence issue the motor nerves, maintains that there was a remarkable development of the tongue; this is also indicated by the broad, smooth, concave surface of the symphysis of the lower jaw, which, with the absence of incisors, offered no obstacle to its free motions, and provided space for it when retracted; the megatherium had a short proboscis, prehensile lips, and a smaller tongue in a narrower mouth; the elephant has a maximum proboscis, the giraffe a maximum tongue, the megatherium being intermediate; the mylodon, having no proboscis, had a largely developed tongue for stripping off foliage, contrasting in this respect with the almost tongueless elephant. While the megatherium may have measured 18 feet from the fore part of the skull to the end of the tail, following the curve of the spine, the mylodon measured only 11 feet; other measurements in these animals respectively were: circumference at pelvis 14⅓ and 9⅚ feet; length of skull 2⅚ and 1⅓ feet, greatest width 1⅓ and 1⅓ foot; length of lower jaw 25⅓ and 15⅓ inches, width at symphysis 5⅚ and 5⅓ inches; length of anterior limb 10 and 4⅓ feet; clavicle 15 and 8⅙ inches, humerus 2¼ and 1⅕ feet, ulna 25⅓ and 14⅓ inches, radius 26 and 11 inches; fore foot 31¼ and 14 inches long, and 14¼ and 8⅕ wide; middle and longest claw 10⅓ and 5¼ inches; width of pelvis 61 and 41 inches; length of femur 28⅓ and 19 inches, circumference over great trochanter 3⅙ and 2⅙ feet, and width at same point 16 and 9 inches; tibia 22 and 8⅓ inches; length of hind foot 34⅓ and 19 inches, width 12 and 6⅚; heel bone 17 and 7⅓ inches; middle and largest claw 9⅓ and 5⅓ inches; and width of largest vertebra of tail 21 and 10⅓ inches.—The scelidotherium (Gr. *σκελις*, hind leg, and *θηριον*, animal) is another extinct megatherioid, remarkable for the size of the hind limbs; a nearly entire cranium shows the essential characters of the sloth's skull, with the mylodontal modifications of the complete zygoma and shape of the lower jaw; the teeth were $\frac{5-5}{4-4}$, the upper triangular; the form was massive. Pictet mentions 7 species, varying in size from a hog to an ox, which lived in South America during the diluvial epoch. Some other genera have been described by Owen, Pictet, and Leidy.

MYNSTER, Jacob Peder, a Danish theologian, born in Copenhagen, Nov. 8, 1775, died there, Jan. 30, 1854. He was educated at the university of his native city, was employed for some time in teaching, and became in 1801 pastor in Seeland. In 1811 he was appointed assistant minister of the principal church of Copenhagen, in 1828 preacher to the court and the royal family, and in 1834 bishop of Seeland. His writings comprise a great number of sermons, dissertations introductory to the study of the New Testament and on other biblical subjects, and several works on doctrinal theology. His admirable "Ordination Sermons" and other of his works have been translated into German. An edition of his miscellaneous publications (*Blandede Skrifter*), begun in 1852, was completed in 6 vols. in 1856.

MYRIAPODS. See Centipede.

MYRMELEON (Linn.), the ant lion or lion ant, a genus of neuropterous insects, one of the species of which has become celebrated for the singular manner in which the larva obtains its living prey. The perfect insect resembles a small dragon fly, has a good power of flight, and is generally found in the warmer parts of southern Europe. The larva of *M. formicarium* (Linn.) is about ⅓ inch long, of an oval depressed form, and grayish sandy color; the small head is armed with 2 strong and long mandibles, serrated and pointed, with which it seizes and sucks the juices of its prey. The powers of locomotion being small, it has recourse to artifice to entrap insects; it makes a funnel-shaped excavation in sandy soil, with loose and crumbling sides, and buries itself, all but the head, at the bottom, waiting for a victim; if an ant or small insect approaches the edge, the sand gives way and it rolls down within reach of the expectant jaws; after the body has been drained it is cast out by a toss of the head; if the insect be large or likely to escape, the ant lion throws repeated showers of sand upon it by means of the head, until it falls exhausted and defenceless to the bottom of the pitfall. But sometimes a revengeful wasp, well armed bee, or mail-clad beetle falls into the snare, and the sting of the one or the powerful jaws of the other often prove fatal to the ant lion. The larva state continues about 2 years, when a cocoon is spun, in which it is changed into an inactive nymph; the perfect insect comes out in 2 or 3 weeks, and lays the eggs for a new brood in dry and sandy places suited for the operations of the larvæ. Many other species are described.

MYRMIDONES, an ancient Achæan race of Phthiotis in Thessaly. According to the mythological account, they originally came from Ægina, where, at the request of Æacus, Jupiter changed all the ants (*μυρμηκες*) of the island into men, who from their origin received the name of Myrmidones. They subsequently followed Peleus into Thessaly, accompanied his son Achilles in the expedition against Troy, and at a later period disappear from history. Other accounts make them the descendants of Myrmidon, a son of Jupiter and Eurymedusa, whom the god deceived in the disguise of an ant. Modern critics suppose that they were a Thessalian colony, which emigrated to Ægina. From them is derived the word myrmidons, designating a band of rough soldiers or ruffianly marauders devoted to the will of a leader.

MYRON, a Greek sculptor, born in Eleutheræ, in Bœotia, about 480 B. C. He was remarkable for his versatility, and beside representing the human figure in its most difficult attitudes, he modelled animals with success. His masterpieces were nearly all in bronze. The most celebrated were his *Discobolus*, or quoit player, and his "Cow." There are several marble *Discoboli* still extant, copies of the original. One of them is in the Towneley gallery of the British museum, another in the Villa Massimi at Rome, and a third in the museum of the Vatican. The cow of Myron, which stood on a marble pedestal in the agora at Athens, was an object of even more admiration than the quoit player. It was afterward removed to the temple of Pax at Rome. Of Myron's other works, perhaps the most famous were his colossal statues of Jupiter, Minerva, and Hercules at Samos, which were carried off by Mark Antony. Augustus restored Minerva and Hercules to the Samians, retaining only Jupiter, which he placed in the capitol.

MYRRH (Gr. μυρω, to trickle), a gum resin exuded spontaneously from the bark of the *balsamodendron myrrha*. It was known in commerce at a very early period, frequent allusion being made to it in the Old and New Testaments; but the tree which afforded it, though described by Dioscorides, was not fully known till 1825, when Ehrenberg brought a specimen of it from the borders of Arabia Felix. The best myrrh was formerly imported from Turkey, but all qualities are now brought from India. It is obtained in agglomerated tears of various sizes, of a reddish brown or pale reddish yellow color, semi-transparent, with a dull, splintery kind of fracture. It has a pungent balsamic odor, and a bitter aromatic taste. It is readily dissolved by the alkalies. Water dissolves the gum principally, while alcohol and ether take up the volatile oil and resin. The best quality consists of 34 per cent. of resin and 66 of gum. Samples analyzed by Brandes and Braconnot gave the following results:

	Brandes.	Braconnot.
Volatile oil	2.60	2.5
Resin	27.30	23.0
Gum: soluble	54.88	46.0
Gum: insoluble	9.32	12.0
Salts: benzoates, malates, phosphates, sulphates, and acetates of potassa and lime.	1.36	....
Impurities	1.60	16.5
Loss	2.94	
Total	100.00	100.0

Myrrh is employed only in medicine; it is useful in disordered conditions of the digestive organs and as an expectorant, externally as a dentifrice, and in the form of tincture as a gargle for ulceration of the throat. It is also an ingredient in some plasters.

MYRTLE (Gr. μυρτος), a beautiful plant, native of Persia, but naturalized in the south of Europe, being now abundant on the sea coast from Marseilles to Genoa, and throughout Italy. The leaves of the myrtle are sempervirent, of a rich dark green tint, ovate, lanceolate, or acute. They are covered with pellucid dots, which secrete a highly fragrant volatile oil. From the axils of the leaf issues a solitary pedicel with 2 linear bractioles, and bearing on its summit a single flower with a 5-cleft calyx, 5 white petals, numerous stamens, and one style, which is succeeded by a somewhat globose berry of 2 to 3 cells. The common myrtle (*myrtus communis*, Linn.), the most northern species of the order, is the type of the natural order *myrtaceæ*, which comprises a great many genera, natives of hot countries both within and without the tropics. A woody texture belongs to all the myrtle tribe, but the habits this assumes vary greatly, as De Candolle observes, from the *M. nummularia*, which spreads over the soil in the Falkland islands as the thyme does in Europe, to the immense *eucalypti* of Australia, which are among the most gigantic trees of that continent. The common myrtle in its usual size and height gives us however a good idea of the average size of the majority of the *myrtaceæ*. Some myrtles in the vicinity of London have been known as trained plants to reach a height of 10 to 20 feet, and an equal width. At Cobham hall in Kent are several specimens 30 feet high. The myrtle cannot, however, be considered as more than a half-hardy shrub in Great Britain. It was introduced into England in the 16th century; Gerard knew the myrtle in cultivation as early as 1597. Pliny informs us that it was a rare plant in Italy in his day; he, however, makes mention of 11 sorts, and remarks that the most odoriferous grew in Egypt. In the United States the myrtle is usually treated as a pot plant, or when large grown in tubs, for removal into the cellar on approach of winter. De Candolle's arrangement of the kinds of myrtle is considered the best. According to that, there are two species, viz.: 1, *M. melanocarpa*, or black-fruited, common in gardens, where are varieties of it with double flowers and variegated foliage, and also embracing the broad-leaved or Roman myrtle, the box-leaved, the upright or Italian, the orange-leaved, the acute-leaved or Portugal, the broad-leaved Dutch, and the thyme-leaved myrtles; and 2, the white-berried, *M. leucocarpa*, native of Greece and the Balearic isles, the fruit of which is rather large, edible, with a grateful smell and taste. There are several striped-leaved sorts known in Europe, of much beauty. All the varieties propagate readily by cuttings and from seeds. The cuttings should be struck in sand, or peat and sand, and covered in the process with a bell glass.—The myrtle was well known to the ancients, and was held in high esteem for its beauty, supposed virtues, and medicinal qualities. It was employed as a symbol of authority, and entwined with laurel for wreaths in the triumphs of bloodless victory and of the Olympic and other games. The buds and berries were used as spices, and the latter are still employed in Tuscany as a substitute for pepper. A wine made from the myrtle was called *myrtidanum*. In Greece the berries are administered to little children for treatment of diarrhœa. The *eau d'ange*, a sort of perfume sold in France, is distilled from the flowers. Medicinal qualities reside in the astringent nature of the various portions of the plant; and in Greece, Italy, and the south of France the bark is used in tanning.—There are some other species occasionally met with in collections, such as *M. tomentosa*, a native of China, with rose-colored flowers, and *M. myrsinoides*, a native of the colder parts of Peru. The order of myrtleworts (*myrtaceæ*) is of much interest, embracing as it does the pomegranate, the guava, the clove, the pimento or allspice, and many trees producing valuable gums and important astringents.

MYSIA, in ancient geography, a N. W. division of Asia Minor, the boundaries of which greatly varied at different periods. In the time of the early Roman emperors it was bounded N. by the Propontis (sea of Marmora), E. in part by the Bithynian Olympus, S. E. by Phrygia, S. by Lydia, W. by the Ægæan, and N. W. by the Hellespont (strait of Dardanelles). It thus included, among other territories, those of Troas in the N. W., and Teuthrania (which included Pergamus), as well as the Grecian coast land of Æolis, in the S. W. Mysia was for the most part mountainous, the principal ranges within its boundaries being Mt. Ida in Troas, Mt. Temnus, which extended from the former to the borders of Phrygia, dividing the country into two unequal parts, and Mt. Olympus on the north-eastern or Bithynian border. Of the principal rivers, the Caicus and Evenus flowed into the Elaitic gulf, on the S. W. corner; the Satnois into the Ægæan, N. of Cape Lectum; the Scamander and Simois, renowned in Trojan legends, into the Hellespont, near Cape Sigeum; the Granicus, on the banks of which Alexander the Great achieved his first victory over the Persians (334 B. C.), the Æsepus, Tarsius, Macestus, and Rhyndacus, into the Propontis. The largest gulf was that of Adramyttium (now Adramyti) on the Ægæan, opposite the island of Lesbos. Mysia is more renowned in legendary traditions than in history, the chief interest attaching to the territories of Troas, Pergamus, and the Æolian confederacy. Having been successively under the dominion of the Persians, of Alexander the Great, his general Lysimachus, and the Seleucidæ, it was assigned by the Romans, after their victory over Antiochus the Great (190), to the new kingdom of Pergamus, which had previously been formed from one of its parts, and with the whole of that kingdom was bequeathed to the Roman republic by King Attalus III., thus becoming a part of the proconsular province of Asia (133).

MYSORE, a semi-independent native state in the S. of India, within the geographical limits of the presidency of Madras, situated between lat. 11° and 15° N.; area, 30,886 sq. m.; pop. 3,460,696. The state is divided into 8 districts, Chitteldroog, Bednore, and Seringapatam; the chief towns are Bangalore, Mysore, and Seringapatam. The country consists of a table-land elevated about 3,000 feet above the level of the sea. The principal rivers are the Cavery, Tumbudra, Vedawati, and the N. and S. Pennar. There are no natural lakes, but many large tanks and artificial reservoirs in the high grounds. Some of the mountains attain a height of 6,000 feet above the sea. The level of the table-land is interrupted in places by large masses of granite, rounded in their outlines, standing single or in clusters. The climate is healthful. Mysore not only produces the grains, vegetables, and fruits of other parts of India, but also many of those belonging to the temperate regions. A considerable portion of the surface is covered with jungle, but the country appears to have been formerly in a much higher state of cultivation than at present. Rice, sugar cane, *raggy*, a species of coarse grain, and wheat are the chief crops raised. The betel tree and the plant from which castor oil is made thrive well. Carbonate of soda, salt, and iron are found. The inhabitants are principally Hindoos, though there are many Mohammedans. Coarse blankets, woollen carpets, shawls, and cottons are manufactured.—Mysore is mentioned in the Hindoo mythological writings; but the earliest authentic history of the country which we possess commences with the Mohammedan invasion in 1326, when the kingdom was incorporated with the empire of Delhi. The affairs of that empire soon afterward falling into confusion, Mysore was lost, and some Hindoos escaping from Mohammedan persecution in the N. founded a city on the banks of the Tumbudra, which is now called Bijayanagai. This new state comprised nearly the whole of Mysore and part of the Carnatri; but in 1565 its ruler, Ram Rajah, was defeated and slain by the army of a Mohammedan confederation, and his capital taken and depopulated. A Mysorean chief, named Rajah Wadeyar, acquired possession of the fort and island of Seringapatam, and his successors, by a career of aggression, toward the close of the 17th century, had extended their authority over the whole table-land of Mysore. In 1731 the minister deposed the rajah, and in 1749 Hyder Ali made his appearance as a volunteer in the army of Mysore. Upon the death of Tippoo Sultan in 1799, the British annexed a considerable portion of his dominions to their Indian possessions, and allotted the territory now known as Mysore to the descendant of the rajah who had been supplanted by Hyder; but though the government of Mysore is nominally in the hands of a native prince, it is in reality vested in the British resident at his court, appointed under the Madras presidency. (See Hyder Ali, Tippoo Sultan, and Seringapatam.)—Mysore, the capital, is situated in lat. 12° 19′ N. and long. 76° 42′ E.; pop. 54,729. It is enclosed with an earth wall. The fort, which contains the rajah's palace, is a European structure. The principal traders and bankers reside in it.

MYSTERIES (Gr. *μυστηρια*, from *μυω*, to shut the lips, to keep silence), ceremonies in ancient religions to which only the initiated were admitted. Little is certain concerning them except the fact of their existence and importance, and their prominence in modern speculations on the history of ancient religions. They may be obscurely traced in the early Orient, in the rites of Isis and Osiris in Egypt, in the Persian Mithraic solemnities, and in the festivals introduced into Greece with the worship of Bacchus and Cybele; the rites of Hellenic worship culminated in them in divers forms and places, from the traditional age of the Samothracian divinities till the time of the Neo-Platonic philosophers; and they lingered through the decline of Rome, and perhaps left their traces in the ceremonies of free masonry. Hellenic paganism may be said to have concentrated in the Eleusinian and other mysteries the essence of its faith, and there surrounded it with the most splendid symbolical ritual. They were called indiscriminately in Greek *μυστηρια*, *οργια*, and *τελεται*, and in Latin *initia*, with reference respectively to the mystical and secret nature of the ceremonies, to the enthusiasm which they inspired in the votaries, to the edification which resulted from them, and to the initiation which they promised into a new life. They consisted, in general, of rites of purification and expiation, of sacrifices and processions, of ecstatic or orgiastic songs and dances, of nocturnal festivals fit to impress the imagination, and of spectacles designed to excite the most diverse emotions, terror and trust, sorrow and joy, hope and despair. The principal subject of the representations was the legends of particular divinities, their abode and passion on the earth, their descent into Hades and death, their return and resurrection, thus symbolizing at once human destiny and the order of nature. The celebration was chiefly by symbolical acts and spectacles; yet sacred, mystical words, formulas, fragments of liturgies, or hymns were also employed. There were also certain objects, with which occult meanings, that were imparted to the initiated, were associated, or which were used in the various ceremonies in the ascending scale of initiation, such as the *phallus*, *cteis*, *cyceon*, *cistus*, *calathus*, *thyrsus*, flambeau, serpent, tympanum, &c., according to the different mysteries. That any esoteric abstract dogmas were thus perpetuated, that any superior doctrine, cosmological, physical, metaphysical, or moral, was communicated to the initiated, is according to the best contemporary critics not proven, though the reverse was universally supposed by the scholars of the last century. They probably gave a figurative and symbolical instead of a direct and dogmatic instruction. Founded on the adoration of nature, the forces and phenomena of which were conceived by the imagination and transformed into the characters of the mythology, they appealed to the eye rather than the reason. They were designed by imposing and mysterious external splendor to create more vital and effective impressions from the symbols, sentiments, and ideas which belonged to the current system of mythical dogma and legend. The sacred phrases, the *απορρητα* concerning which silence was imposed, were themselves symbolical legends, and not statements of speculative truths. The most diverse theories have been suggested concerning the origin of the Hellenic mysteries. According to the older critics, as Warburton, Faber, St. Croix, Schelling, and Creuzer, they were the ceremonies of a secret order, possessing a higher and peculiar wisdom, which was derived either from the Hebrew revelation through Phœnician colonization, or from an original revelation to mankind through Indian and Egyptian traditions. Creuzer supposes them to have been introduced at the dawn of Greek civilization, to which they furnished the religious impulse, to have been originally the public religion, but after the modifications caused by Hellenic hero worship to have been transformed into secret rites, in connection with which were preserved, veiled in symbols and legends, the higher meanings of the mythology, which were finally interpreted in abstract formulas by the Neo-Platonic philosophers. On the other hand, Voss maintained that the mysteries were founded by priests with the design of changing the genius of the national religion by innovations from the East or by their own inventions, and that they thus embodied rationalistic improvements and an artificial symbolism instead of older traditions. Lobeck attributes their origin to the *sacra gentilicia*, the private religious ceremonials of families, tribes, corporations, which were exclusive rather than secret, possessing no peculiar theological or moral doctrines, and attaining to national eminence only by extraordinary ritual splendor. The latest and most elaborate researches on the subject are by Preller, who refers them ultimately to the worship of the infernal divinities in the Pelasgic period, the transformation of which into mysteries was rather due to germs of mysticism contained in itself than to persecution by Hellenic conquerors. The antagonism of the mystical to the mythical cultus he founds on the ethnological distinction between the Pelasgi and the Hellenes, the former of whom opposed to the Homeric anthropomorphism a religion of symbols and allegories, which was preserved in the mysteries, and in which polytheism approached nearest to the ideas which were to triumph in Christianity. Thus originated, they borrowed divers oriental elements from the Orphic priesthood, from the Egyptian worship of Isis and Serapis and the Persian worship of Mithra, combining the superstitions of the East and the West, the excesses of religious emotion and philosophical speculation, astrology, magic, and finally Neo-Platonic theurgy and ecstasy.—The oldest of the Hellenic mysteries are believed to be those of the Cabiri in Samothrace and Lemnos, which were renowned through the whole period of pagan antiquity. Though they were only less august than the Eleusinian, nothing is certain concerning them, and even the names of the divinities are known to us only by the profanation of Mnaseas. According to Schelling, the Cabiri were remotely of Hebrew origin, and formed a council of gods in an ascending scale, terminating in the Supreme Being as unity, who combined together in a symbolical creation of the world by a sort of magical operation, in which the initiated also took part. The object of the mysteries was to exalt the initiated to Cabiric dignity. The harmonious motions of the planets emblemize this union of gods and men. Welcker supposed that they were instituted to celebrate fire as the principle of the universe, Faber that they commemorated mutilated traditions of the deluge; Müller found in the Cabiri the symbols of an eternal creator, an eternal destroyer, and a delusive and ever changing nature; Maury and others believe them to have been the demiurgic divinities of Phœnician navigators; and Finnur Magnusson attempts to trace a connection between them and the kobolds of the northern mythology.—The Eleusinian were the most venerable of the mysteries, and in every period of classical antiquity commanded the homage alike of the most distinguished poets, philosophers, historians, and statesmen. All the resources of art were employed to contribute to their splendor. "Happy," says Pindar, "is he who has beheld them, and descends beneath the hollow earth; he knows the end, he knows the divine origin of life." They comprised a long series of ceremonies, concluding with complete initiation or perfection. The fundamental legend, on which the ritual was founded, was the search of the goddess Ceres for her daughter Proserpine, her sorrows and her joys, her descent into Hades, and her return into the realm of light. The rites were thought to prefigure the scenes of a future life. The same symbol was the foundation of the Thesmophoria, which were not like the Eleusinia a local institution, and which honored Ceres especially in the character of lawgiver; they were celebrated exclusively by married women. The Eleusinia dwelt on the changes of the seed of corn under the figure of the loss of Proserpine, and her ultimate return to her searching mother, vicissitudes which symbolize the course of nature and the destiny of the soul; the Thesmophoria were occupied rather with the mother than daughter, and celebrated the maternity of the goddess of the earth. It is probable that initiation into the Thesmophoria was designed to protect against the dangers of childbirth, as the Eleusinia protected against the perils of the lower world, and the Samothracian against the perils of the sea.—The Orphic and Dionysiac mysteries prevailed from the time of the Pisistratidæ, and exerted a powerful influence on the religious institutions and life of antiquity. They seem to have designed a reformation of the popular religion. Founded upon the worship of the Thracian Dionysus or Bacchus, who was the personification at once of rapturous pleasure and of deep sorrow for human miseries, unlike the earlier popular Dionysia they tended to ascetic rather than orgiastic practices. Christian priests and philosophers of the Alexandrian school ascribed to the Orphic fraternity a complete system of mystical doctrine, but little of the literature in which this was embodied is so ancient as the time of Plato. It is certain, however, that there was a union of the Pythagorean and Orphic associations after the expulsion of the former from Magna Græcia, that an Orphic theogony was in vogue quite distinct from that of Homer and Hesiod prior to the Persian war, and that more hopeful views of the destiny of the soul were entertained, founded upon the expected succession of Bacchus to Jupiter in the government of the world, and the consequent restoration of the golden age. The Orphic mysteries, unlike those that were more ancient and popular, were specially designed for doctrinal inculcation. Other mysteries were those of Zeus or Jupiter in Crete, of Hera or Juno in Argolis, of Athena or Minerva in Athens, of Artemis or Diana in Arcadia, of Hecate in Ægina, and of Rhea in Phrygia. The worship of the last under different names prevailed in divers forms and places in Greece and the East, and was associated with the orgiastic rites of the Corybantes.—More important were the Persian and Roman mysteries of Mithra, who appears in the Zend-Avesta as the chief of the izeds or angels, as the conqueror of tyrants and demons, giving safety to towns and fertility to lands, as the genius of love and truth, and mediator between Ormuzd and men. He resembles the demiurgic Eros of the theogony of Hesiod, and his origin has been referred to the Assyrian Mylitta or Alitta, the goddess of night, destiny, and fortune. She was the mother of two divinities, Baab Mylitta and Ahriman, and was herself confounded with the first, whose name was changed by the Persians into Mithra, and who is therefore sometimes represented as feminine. Little is known of Mithraicism till it appeared in Rome as a mysterious and secret worship about the beginning of the 2d Christian century, from which date memorials of it remain. It was propagated by Chaldean and Syrian priests, who spread themselves throughout the empire and were received with great favor, being most honored in the age of the Antonines. The austerity of the doctrine of the Mithraic mysteries, the real perils of initiation which neophytes were obliged to encounter, the title of soldier of Mithra which was bestowed upon them, and the crowns which were offered to them after the combats preceding every grade of advancement, were among the peculiarities which gave to these rites a military and bellicose character. There is evidence that the Roman soldiers eagerly sought initiation into them. According to some authors, the Mithraic doctrine was derived from the astronomical religion of the Chaldeans, and its fundamental dogma was the transmigration of souls under the influence of the 7 planets, over whose operations Mithra presided. The design of the solemnities was by purification to render his votaries worthy of admission into the seventh heaven. The initiated were subjected to the severest trials, to celibacy, fasting, and other practices which were probably adopted from the Christian religion. The whole fraternity was divided into 7 classes or grades, which were named successively soldiers, lions, hyænas, &c., after animals sacred to the god. Each class was distinguished by a peculiar costume and offered peculiar sacrifices, which were sometimes human victims. The sacrifice of the bull was characteristic of his worship. On the monuments which have been found in Italy, the Tyrol, and other parts of Europe, inscribed *Deo Mithræ Soli Invicto*, Mithra is usually represented as a young man, in a flowing robe, surrounded with mystical figures, seated on a bull, which he is pressing down, or into which he is plunging the sacrificial knife. A dog, a serpent, a scorpion, and a lion are arranged near him. Nothing is certain concerning the signification of this scene. By an ingenious symbolism, founded on the Assyrian astronomical and cosmological theories, Lajard arbitrarily develops the Mithraic theology, which he regards as the foundation of the religious doctrines of antiquity from India to Rome. Tertullian and other fathers of the church discovered a resemblance between several of the Mithraic and Christian dogmas and ceremonies. During the decline of paganism the mysteries of Mithra were combined with the theurgic doctrines of the school of Alexandria, and he was one of the divinities honored by the votaries of the great Eleusinian goddesses, when the hierophant was consulted by the emperor Julian. Confounded with Sabazius, Attys, Zagreus, and Bacchus, his worship lost its distinctive and peculiar character, and was easily extinguished under Constantine and Theodosius, with the other mysteries, against which the Christian fathers waged a violent warfare as the last refuge of paganism.—See Creuzer, *Symbolik und Mythologie* (1810–'12), translated into French with elaborate annotations by Guigniaut and others (1825–'36); Lobeck, *Aglaophamus* (1830); Preller, *Mysteria*, in Pauly's *Real-Encyklopädie* (1851); Sainte-Croix, *Recherches historiques et critiques sur les mystères du paganisme*, edited by Sylvestre de Sacy (Paris, 1817); Limbourg-Brouwer, *Histoire de la civilisation des Grecs* (Groningen, 1833–'41); Maury, *Histoire des religions de la Grèce antique* (1857); Seel, *Die Mithra Geheimnisse während der vor- und urchristlichen Zeit* (Aarau, 1823); N. Müller, *Eine vergleichende Uebersicht der berühmteren Mithrischen Denkmäler* (Wiesbaden, 1833); and Lajard, *Recherches sur le culte public et les mystères de Mithra* (Paris, 1847–'8).

MYSTERIES, mediæval dramas. See MIRACLES AND MORALITIES.

MYSTICISM (Gr. μυστικος, from μυω, to shut the lips or eyes), in philosophy and theology, the doctrine that by means of an inward illumination and feeling, transcending the efforts of faith and of reason, we may immediately know, commune with, and coöperate with the Deity. It ignores the divine manifestations, whether in the signs of nature or in the ideas and processes of the soul, and claims the direct and delightful union of man with God without any intermediation whatever. It teaches that the sovereign good is the possession and enjoyment of God; that by our natural faculties we are wholly incapable of this attainment; that to confess the futility of our nature is at once the conclusion of science and the beginning of wisdom; that we inherit divine gifts only by contemning the world, quelling the passions, escaping from the dominion of the senses, abandoning knowledge and reason, fleeing even from ourselves, transported by a preternatural inspiration, which is God in the soul. It implies the silence of sense, reason, and conscience, and the extinction of personality, in a state of mysterious inward vision and passive bliss. "No one," says Philo, "can understand this migration of the perfect soul to the eternal, not even he to whom it happens; the soul can convey no idea of the ineffable blessings which it shares, for it is wholly possessed by the spirit of God." In this state of ecstasy all disquiet, effort, and pain cease; the soul loses itself in the divine grace which fills it, and is but an instrument under the touch of Deity. The ideal of virtue and sanctity thus becomes a devout illumination, a blind abandonment of personal qualities for contemplation without thought and for prayer almost without consciousness. In some of the forms of mysticism it is by disinterested and intense love, rather than utter self-abandonment, that the divine union is accomplished. But they are universally characterized by contempt of the reason and of intellectual processes as ineffective and illusive, and by a tendency to ascetic or theurgic practices. —From the earliest periods mysticism has commonly characterized oriental religions and speculations. Pantheism, absorption into the infinite, and the extinction of self in a sort of divine trance are taught and illustrated in much of the ancient Hindoo literature, particularly in the heroic poem of the *Bhagavat-Gita*. Soofeeism is the principal mystical doctrine of Mohammedanism, and is traced by Sylvestre de Sacy to an ancient Persian sect. The mystical tendency of the East, apparent in the mysteries of the Egyptians, probably modified the Pythagorean discipline. The Orphic priesthood and some of the Greek mysteries contributed to the advancement of the doctrine, which became a prominent characteristic of Neo-Platonism, especially of the writings attributed to Iamblichus and Hermes Trismegistus. It was introduced into Christianity by the Alexandrian theologians, and the books ascribed to Dionysius the Areopagite present a complete mystical system of mingled Christianity and Platonism. There are, according to him, three steps to the goal of Christian attainment: 1, purification, freeing the soul from the bonds of nature; 2, illumination, in which the disenthralled soul begins its new life; and 3, perfection, or an ecstatic existence in God, the highest manifestations of which are in prophecy and miraculous works. From him proceeded the scholastic mysticism, the most distinguished names in the development of which were St. Bernard and Hugo de St. Victor, the former treating particularly of the rapture of divine love, and the latter of the ecstasy of contemplation. The German mystics, Eckart and Tauler, gave to the doctrine a more legitimate ethical character, by dwelling upon sin instead of finiteness as the cause of evil. Some of the monastic institutions, the visions of Elizabeth of Hungary, Hildegard, Angela of Foligno, and Catharine of Sienna, and the Gnostic, Manichæan, Paulician, Bogomile, Catharist, and Beguin sects, illustrated more or less distinctly the mystical tendency. The same tendency appeared at the dawn of modern philosophy in Cornelius Agrippa, Paracelsus, Bruno, and Campanella, who sought a preternatural knowledge of the secrets and mastery over the elements of nature. The mysterious order of the Rosicrucians was believed to follow in the same direction, to possess a whole body of arcana, secretly transmitted from immemorial antiquity, and to perform divers miracles by means of elixirs and theurgical symbols. There is, however, no certain history of the Rosicrucians. The mysticism of Jacob Böhme, whom Hegel calls the first representative German philosopher, had reference to theology instead of natural science. In Spain, St. Theresa and John of the Cross were both celebrated for their raptures, and the writings of the first still hold a high place in ascetic literature. The system known as quietism came into vogue in the 17th century, being maintained in France by Mme. Guyon and in Italy by the Spanish priest Molinos; it was for a time defended by Fénélon, but the powerful opposition of Bossuet effected its ecclesiastical condemnation. A moderate and refined mysticism appears in the English Platonists Henry More, Norris, Gale, and Cudworth; and the later writings of William Law were chiefly devoted to developing the doctrines of Böhme. The romantic school in Germany caused a revival of the doctrine in literature, philosophy, and religion, its most prominent representatives in each being Novalis, Schelling, and Görres. The last defined it as "vision by means of a higher light, and action under a higher freedom," and regarded it as the highest attainment of Christian culture.—See Görres, *Die Christliche Mystik* (1836–'42); Noack, *Die Christliche Mystik* (1853); Schmidt, *Essai sur les mystiques du XIV^e siècle* (1836); and Vaughan, "Hours with the Mystics" (1856).

MYTHOLOGY (Gr. *μυθος*, a saying, and *λογος*, science), the science of myths, of the narratives of the deeds and destinies of gods and heroes in ante-historical periods. Myths are figurative representations of events or ideas in the garb of history; they develop themselves spontaneously and unartificially in the consciousness of a primitive people, instead of being artistic products of design and invention; and they symbolize the forces and operations of nature, under whose influence they are formed, and have an essentially religious character. The myth proceeds from an idea, and creates a fact; the legend proceeds from a fact, in which it discovers an idea. The one transforms poetry, religion, or philosophy into history; the other modifies history with reference to conceptions of poetry, religion, or philosophy. Both are usually included in mythology as philosophical or poetical and historical myths. Comparative philology marks as the first period in the history of man an age in which expressions were formed for the necessary ideas of the simplest life, in which the first steps were made in the elaboration of grammar, but in which language was in the main unorganized and undivided. This was succeeded by a second period, in which at least two families of languages, the Semitic and the Aryan, advanced to a systematic grammatical development, with roots and a method which still prevail in all the dialects and national idioms founded on them. A third period intervened prior to the earliest traces of national history, which was the age of the formation of myths. There were as yet neither abstract nor collective nouns, which are fewer in number the further back we go in the history of languages; and every name, therefore, designated a definite individual object. Names moreover had a termination expressive of gender, suggestive of sex, neuters being of later growth; and therefore while language remained in that state it was impossible to speak of whatsoever object without ascribing to it something of an individual, active, sexual, and personal character. Thus personification characterizes a stage in the formation of language corresponding to that of myths in the development of thought. All speech represented a kind of unconscious poetry, universally ascribing personal life to the forms of nature, changing all objects into powers and all relations into actions. The creation of every word was a poem, embodying a bold metaphor or a bright conception. The verbs also were expressive of personal qualities and agency, and only after passing through a long chain of vicissitudes were lifeless auxiliaries produced fitted for the purposes of abstract prose. Thus the sunset was conceived as the sun growing old, decaying, dying; the sunrise, as night giving birth to a brilliant child; spring, as the sun greeting the earth with a warm embrace, and showering treasures into the lap of nature. Rivers, fountains, grottos, forests, mountains, rain, storm, the ocean, fire, thunder, clouds, and the heavenly bodies were all clothed with living attributes, and every description of nature was a myth. Every natural change was a sign of the hostile or peaceful, happy or ill-omened coincidence of certain divinities. Thus instituted, myths became organic elements in thought and remained as fossil poetry in language, survived national migrations and conquests and triumphed over the advance of knowledge, were modified by the contact of different peoples and by poetical and philosophical treatment, were esteemed the ultimate explanations of natural phenomena, and constituted the religious systems of the principal nations of antiquity.—The Semitic races, says Renan, have never had a mythology. From the beginning they have not varied from the conception of the government of the universe as an absolute monarchy, and have seen in the development of things only the inflexible accomplishment of the will of a Supreme Being. Endowed with a sure intuition of unity, which at once without reason or reflection unveils the Deity, they possessed the purest religious notions known in antiquity. India and Greece could not by philosophical speculation attain to monotheism, but the Semites grasped it by the instincts of their nature; and the three religions of greatest power in the history of western civilization sprang from them, from Sinai, Jerusalem, and Mecca. They could not comprehend in the divine unity variety, plurality, or sex, did not lose the idea of the infinite amid the apparent conflicts of nature, and with little interest in science may almost be said to have had a special sense for religious truth. This characteristic explains the absence of the epopee from their literature. The great poems produced by Indian, Persian, and Greek imagination were possible only in a world where the boundaries between men and gods were indeterminate, and conflict between them in some degree equal, and where revolution and progress were known in the divine dynasties.—The myths of greatest prominence and interest are those of the Indo-European nations. Before the Aryan race was broken up into nationalities, as the Indian, Greek, Roman, Slavic, Teutonic, and Celtic, it had developed the mythical germs which are now common characteristics of a whole family of mythologies, the principal of which are the Indian, the Persian, the classical, and the northern. The late mythology of the Puranas and the epic poets is more peculiarly Indian, but the elder Veda is to comparative mythology what the Sanscrit is to comparative grammar. There is in it no system of religion, there are no settled genealogies; the same god is sometimes made the superior, the equal, or the inferior of others; their first conception is in many cases transparent; and the fresh and growing personifications strikingly contrast with the fully developed and decaying myths of the poetry of Homer. The Veda gives the real theogony of the Aryan race, of which Hesiod presents but a distorted image. The names of natural phenomena were gradually obscured, personified, and deified; but in the Veda they are *nomina* and not *numina*, masks without an actor, creations of man and not creative beings. The body of the language had not yet become petrified, and the living words which, when the relations that they expressed had faded and escaped from perception, were to be preserved as curiosities and to become organic myths, were as yet employed for the ordinary interchange of thought. The old Vedic mythology was, in general, a worship of light. The beaming æther which fills the heavenly spaces with light was the principle of life and the impulse to motion. The divinities of light were the highest; as Indra, the god of the starry firmament, of storm, thunder, and lightning; Mithra, Surya, Savitar, and other divinities of the sun; Ushas, the dawn; the two Asvins, the heralds of the dawn; and Agni, the highly honored god of fire. All the phenomena of light were regarded with reference to human life; the sun revives the earth, and calls men to prayer and sacrifice; Agni, as the mediator in the sacrificial flame, takes the gifts and prayers of men to the gods; and the lightning of Indra rends the clouds in order to shed the blessings of rain. Such were the fundamental features of Vedism before the severance of the Aryan stock. Then the ancestors of the Celts, Greeks, Italians, Germans, and Slavi migrated to Europe, and after a time other Aryan currents populated Persia and Hindostan. Each nation gave a peculiar development to the language, customs, and religion which they had possessed in common.—The following outline of the principal mythological systems mentions the more prominent religions and divinities, which are treated in detail under their titles in special articles. In the post-Vedic period first appears the Hindoo conception of Brahma as the infinite author of the universe. The pantheism of the Brahmins and the popular polytheism were developed side by side. In the age of the great epics the pantheon was already completed. From the mass of deified natural powers and elements three gods, Brahma the creator, Vishnu the preserver, and Siva the destroyer, stood forth preëminent. The most honored of the subordinate divinities are the 8 Lokapalas, who preside over and protect the 8 parts of the world. They are Indra, the god of the firmament; Agni, of fire; Yamas, of the lower world; Surya, of the sun; Varuna, of water; Purana or Vayu, of the wind; Kuvera, of riches; Soma or Tshandra, of the moon. Other divinities are Kartikeya, the leader of the heavenly hosts; Ganesa, the god of wisdom; Kamas, of love; Ganga, the goddess of the Ganges; Naradas, the messenger of the gods. The principal female divinities are Saraswati, wife of Brahma, protectress of the arts and sciences, especially of music; and Kali, the wife of Siva, and more than any other an object of terror. Among demigods and fictitious heroes of poetry are the 7 or 10 Brahmadikas or Rishis (seers), the greatest of whom is Dakshas, the father of the Asuras (demons) by Diti, and of the Devas (divine persons) by Aditi. The Gandharias are the heavenly singers and dancers; the Apsarasas, heavenly nymphs; the Yakshas, attendants of Kuera, and guardians of treasures in mountains; and the Rakshasas, hostile to men and to everything good. Other evil spirits are the Kinnares and the Pisatshas. The three worlds, divine, human, and infernal, which now exist, are not to be eternal, but will be terminated by Kali. Of animals, the bull, serpents, and the bird Ganada which accompanies the gods, are particularly worshipped. The banian or Indian fig tree is deemed sacred. Buddhism and Lamaism preserved with modifications most of the old Brahminic divinities. No other mythology is so comprehensive and complicated as that of the Indians, the doctrines of which concerning cosmogony, theogony, and human life and destiny are alike marked by a mystical ideality. It has been claimed that there is no idea nor fable holding a distinguished place in western systems of religion, the counterpart of which does not exist in the Indian.—In Mazdeism, the religion of the ancient Persians, supposed to have been revealed by Zoroaster, and still professed by the Parsees, Ormuzd is the highest divinity, and reigns in heaven. He has at his command a hierarchy of spirits, foremost among whom are the 6 Amshaspands, representatives respectively of goodness, truth, justice, piety, riches, and immortality. The second class are the 28 Izeds, who rule the elements, the first of whom is Mithra or the sun. The universe, created out of light and water, had scarcely proceeded from the hands of Ormuzd, when the genius of opposition and evil appeared in Ahriman, of nearly equal power, whose origin is veiled in obscurity. He created the archdevs and the devs to resist the Amshaspands and the Izeds. The Ferners are only the ideas of the Supreme Being embodied, and as a whole they constitute the essential idea of the world, of which the visible creation is but an imperfect imitation. Every object and being, the stars, animals, men, and divinities, have their Ferner or type, by which they exist. Among fabulous beasts are the beneficent bull Sareseok, the Ahrimanic monster Martichoras, the sacred birds Hufrashmodad and Corosh, and the bull Abudad, from the blood of which sprang the animal and the vegetable worlds. The fundamental idea of Mazdeism is the struggle with evil, the final defeat and extinction of which is predicted. To Persia has been attributed much of the fairy and heroic mythology of European mediæval romance.—"The mythical world of the Greeks," says Grote, "opens with the gods, anterior as well as superior to man; it gradually descends, first to heroes, and next to the human race." It is rivalled only by that of the Indians in multifarious wealth, and by none in the beauty of its forms. It represents the world as originally a rude and chaotic mass, from which Heaven (Uranus) and Earth (Gæa) separated themselves as independent divinities. The first race of gods were the Uranids, sons of Heaven and Earth. The powerful brood of the Titans belonged to them. Cronos ruled the second race, but was overthrown by Zeus, who firmly secured his throne after wars with the Titans and Giants in which all nature was convulsed. From the age of the Homeric poems he was regarded as the head of the entire system, the god of heaven and light, holding his seat upon Olympus, in the pure expanse of æther. He divided his dominions with Poseidon and Pluto, yielding to the former the realm of the sea, and to the latter that of the under world, the dwelling place of the shades of the dead. His throne was surrounded by 11 other great Olympian gods and goddesses: Poseidon, Apollo, Ares, Hephæstus, Hermes, Hera, Athena, Artemis, Aphrodite, Hestia, and Demeter. There was an indefinite number of other divinities, some of them of nearly equal power, as Pluto, Helios, Hecate, Dionysus, Lato, Dione, Persephone, Selene, Themis, Eos, Æolus, Nemesis, the Graces, the Muses, the Fates (Mœræ), the Eumenides, the Oceanids, the Nereids, the Nymphs, and the Hours. There were other deities whose personality was more faintly conceived, as Ate, the Litæ, Eris, Thanatos, Hypnos, Cratos, and Bia. There were also monsters, the offspring of the gods, as the Harpies, Gorgons, Grææ, Pegasus, Chrysaor, Echidna, Chimæra, Cerberus, Geryon, the Lernæan hydra, the Nemean lion, the centaurs, the sirens, the sphinx, Scylla and Charybdis. These divinities peopled the earth, the heavens, the sea, and the infernal world. Poseidon was surrounded by Amphitrite, Thetis, the Nereids, and the Tritons; the Eumenides pursued guilt and remorse; Persephone reigned with Pluto in Hades, the entrance to which was guarded by Cerberus; Minos, Æacus, and Rhadamanthus judged the shades of the dead; Pan and the Fauns ruled in fields; the Nymphs, in mountains and fountains; the Dryads and Hamadryads in forests; the Muses and the Graces inspired poetry and beauty; Eos opened to Apollo the gates of the sky; Æolus bound the winds in caves, or sent them forth on their mission; and the rainbow was the highway of Iris, the messenger of the gods. Above the whole system Destiny was vaguely conceived as a resistless power, which, however, rarely interferes to violate the freedom of the world. Elaborated by poets and philosophers, the Greek mythology attained a nearly symmetrical development, and embodied an aggregate of religious, physical, and historical doctrines, which formed the whole staple of Greek culture. It included elements borrowed more or less directly from the Orient, and modified by the Greek genius, but many of its historical dependencies are still matters of investigation and discussion. It remained the most important and the characteristic ingredient in the religion of ancient Rome. The Romans, in adopting the Greek mythology, for the most part mingled with it the legends and transferred to it the names of their own divinities, or imparted to the Greek names a Latinized form; and it is by these Latin names that both the Greek and Roman divinities have been most generally known in later times. Thus, Cronos they called Saturnus; Zeus, Jupiter; Poseidon, Neptunus; Ares, Mars; Hephæstus, Vulcanus; Hermes, Mercurius; Hera, Juno; Athena, Minerva; Artemis, Diana; Aphrodite, Venus; Hestia, Vesta; Demeter, Ceres; Dionysus, Bacchus; Leto, Latona; Persephone, Proserpina; Selene, Luna; the Mœræ, Parcæ, &c.—The northern mythology was originally monotheistic, Alfadur, the father of all, receiving the loftiest names as the Supreme Being. But in the popular faith Odin was worshipped as the chief of the Asen, the 12 most powerful gods and goddesses. In the beginning there was neither shore, nor sea, nor earth, but only one vast abyss. To the north of this was Niflheim, a world of icy coldness and full of gloom, with the fountain Hvergelmir in its midst; to the south was Muspelheim, a hot and luminous world, habitable only by the sons of fire. From Hvergelmir flowed forth ice-cold venom streams, the rime of which once met with sparks from Muspelheim, and the consequence was that the Jotun Ymer came into being, the father of the race of evil Jotuns called frost giants. With Ymer sprang to life also the wonderful cow Andhumla, which by licking the salt stones called forth Buri, a beautiful and mighty being, the second generation from whom was Odin, the father of the Asen, the ruling gods of heaven and earth. With his two brothers he overthrew the Jotuns, and destroyed all but one pair. They made of the eyebrows of Ymer the citadel of Midgard (middle earth), destined to become the abode of the human race, which they created, the male from an ash tree, and the female from an alder. The sea forms a belt around the earth, beyond which is the land of giants. The ash tree Yggdrasill supports the whole universe. At its root is a sacred fountain, by which sit the three great Norns or Destinies. Asgard is the abode of the gods, consisting of golden and silver palaces, the most splendid of which is Valhalla, the residence of Odin, where he receives and welcomes the spirits of heroes slain in battle. The greatest of the Asen are Odin, Frigga, Thor, Njord, Freyr, Freyja, Baldur, Loki, Heimdall, Tyr, Hodur, Vali, and Vidarr. Other mythological beings are the giants, norns, elves, dwarfs, the wolf Fenris, the serpent Jormungandr, the water spirits, the Valkyrior, the Strömkarl of Sweden, and the Högspelars, whose silver harps are heard in the cascades and torrents. The author of the greatest misfortunes which have befallen gods and men is Loki, who contrived the death of Baldur, which was wrought by the hands of Hodur, and thus exposed the whole Asen dynasty to ruin. The death of Baldur prefigures the overthrow of the Asen divinities, and of the present cosmological system, which catastrophe will be followed by a new world and new gods. The whole mythology breathes the spirit of war. The myths consist chiefly of the exploits of the gods, and heroic men who have given the most illustrious examples of the Berserkir rage are received into Valhalla only to engage in supreme felicity in mimic combats and hunting matches. The old German and the Slavic mythologies are akin to the Scandinavian. The legends of the ancient Egyptians, Chaldeans, Phœnicians, and Celts, of the American Indians, Mexicans, and Peruvians, and of most barbarous nations, constitute mythologies.—After the revival of letters Boccaccio and others reproduced the myths of classical antiquity, employing them to aid literary taste and invention. The allegorical method of interpretation succeeded, and Bacon discovered in them concealed germs of moral and social doctrine, and Vico deduced from them the primitive conceptions of reason, the first fruits of imagination, the beginnings of social order. G. J. Vossius and Spanheim sought to explain them as offshoots and counterfeits of the biblical revelation. Bainer applied the Euhemeristic method to them, and Fréret treated them as positive external enactments. In Germany the hypothesis of an original monotheistic religion, from which mythologies had degenerated, long prevailed. India and Egypt, the populace and the priestly caste, were by different authors (Plessing, Kanne, Görres, Faber) supposed to have possessed this primitive superior knowledge. Others believed them to have a definite scientific import, as to astronomy (Dupuis, Court de Gébelin, Dornedden) or chemistry (Toll, Schweigger). Heyne, who first brought extensive and minute scholarship to bear on the subject, stated the foundation of myths to be either events or notions of earlier humanity; they are therefore either historical or philosophical. The *sermo symbolicus et mythicus* arose necessarily in the infancy of the race; the mind, accustomed only to sensual impressions, sought for external images, and transformed its ideas into narratives of external events. The expression became gradually identified with a new fact, lost its original meaning, and the priests fostered the error. The oldest myths are the physical, and the next the theogonic. For a long time the poets only embellished and altered them, but afterward made use of them as artistic materials, and added to them grace and elegance. They were subsequently modified also by philosophers, so that their authentic interpretation is not now to be expected. According to Voss, the first conception of mankind was that every thing had sprung from earth, water, and air, and these from the separation of a shapeless, confused mass of rude primary materials. This is the origin of popular myths. But teachers of wisdom, priestly or secular, introduced a more rational meaning into these ancestral forms of adoration. Echoes of the Mosaic doctrine of creation, of the deluge, of the glory of the Deity, were also interwoven, and different faiths were intermingled. The pure Hellenic worship was chiefly corrupted by a secret sect of Orphici, who engrafted on it a medley of Phrygian, Egyptian, and Persian notions, and who aimed only to exalt a priesthood. Buttmann considered the actions and events of the mythic world as the accidental offspring of a rich and variously endowed imagination going forth in search of the marvellous. They arose in various places, partly in Greece, partly in the East, were subsequently formed into groups, transferred into various cycles, combined and harmonized, until they retained nothing historical except incidental indications concerning ethnography and geography. The events from which they resulted cannot be evolved with certainty. This is in substance the opinion also of Grote. Creuzer attributes the mythology of the Greeks to the benevolent design of priests educated in the East to raise the people to a purer and higher knowledge. These instructors adapted their lessons by veiling them in figures. To form symbols and to interpret symbols were the main occupations of the ancient priesthood. The most lively personification was a fundamental law. A mass of symbolical and allegorical inventions, derived from the East, lie at the bottom of the Greek mythology, and grew up in connection with the native heroic legends. Their original character, however, was that of a pure monotheistic primitive religion. Hermann defined a myth as a figurative representation of an idea. Mythology is the science of the fundamental ideas of a people, and must be explained on the supposition of a connected system of public knowledge, quite distinct from the popular belief. Welcker maintained that at the basis of Greek mythology lies a hierarchical system of nature, a series of contemplations and speculations, which was preserved in an ancient priestly phraseology, till it was broken and scattered through the whole of mythology. This system is still preserved, particularly in the names, many of which cannot, however, be explained from the Greek language, since they belong to a time when the distinct individual nation was not yet formed. He thus suggested and gave an impulse to the study of comparative mythology, which has been prosecuted by K. O. Müller, Max Müller, and others, and which introduces universal comparative exegesis in place of the separate study of any people. Gladstone reverts to the older theory of derivation from an original revelation. The Homeric poems, according to him, contain the vestiges of a real traditionary knowledge, inherited from the epoch when the covenant of God with man and the promise of a Messiah had not yet fallen within the contracted forms of Judaism for shelter, but entered more or less into the common consciousness, and formed a part of the patrimony of the human race. With a basis of ancient theistic and Messianic predictions, derived from the dispersed kin and contemporaries of the patriarchs, and modified as they travelled further and further from their source, there were added abundant elements of merely human fabrication. The leading scriptural traditions are represented by imperfect and deranged counterparts in the heroic age of Greece. Thus the unity and the supremacy of the Godhead appear in Jupiter, the administrator of sovereign power. The combination of trinity with unity is represented in the 3 Cronid brothers, Jupiter, Neptune, and Pluto, to whom are assigned different regions of the material creation. The tradition of the Redeemer is supposed to have undergone disintegration. The various attributes which were conceived as belonging to him could not be held in combination by the Greek mind. Its first form as deliverer is represented by Apollo, some of the attributes being transferred to his sister Diana or repeated in her. The second form is the Homeric Minerva, corresponding to the Logos of St. John. Latona, the mother of Apollo and Diana, is regarded as representative of the tradition of the woman from whom the deliverer was to descend. The notion of the Evil One, also, shows the process of disintegration, followed by that of an arbitrary reassortment and combination of elements. The idea of a rebellion, menacing the divine dominion with violence, is clothed with a variety of detached and more or less conflicting forms; and the more subtle idea of an influence acting immediately on the spirit of man, and aiming a blow at the glory of the Deity through his creatures, whose allegiance it seeks by the perversion of their own spontaneous agency to withdraw, remains in Homer, but so obscured and enfeebled as to be scarcely recognized. The idea of Evil acting by violence is represented, not exclusively but most conspicuously, in the Titans and Giants. The idea of Evil acting by deceit is represented in Ate. The rainbow of Scripture is represented in the Homeric Iris.—See Creuzer, *Symbolik und Mythologie der alten Völker* (4 vols., 3d ed., 1836–'43); K. O. Müller, *Prolegomena zu einer wissenschaftlichen Mythologie* (1825); Eckermann, *Lehrbuch der Religionsgeschichte und Mythologie der verschiedenen Völker des Alterthums* (1845–'7); Wuttke, *Geschichte des Heidenthums* (2d ed., Berlin, 1855); *Griechische Mythologie*, by Gerhard (1854), Preller (1854–'5), and Welcker (1857); Grimm, *Deutsche Mythologie* (1835); Mallet, "Northern Antiquities" (new ed., London, 1847); Keyser, "The Religion of the Northmen," translated by Pennock (New York, 1854); and Max Müller, an essay on comparative mythology in the "Oxford Essays" for 1856.

MYXINOIDS, an order of fishes, which, with the cyclostomes or lampreys, form the class of myzonts of Agassiz, containing the lowest of the vertebrates. They form the family *hyperotreta* (Müll.), and are characterized by a cylindrical body, obliquely truncated anteriorly; the mouth is furnished with cirri or tentacles, the palate is perforated, and the cavities of the nose and mouth communicate (as in no other fish); the upper margin of the mouth has a single tooth, and the tongue has a double recurved row on each side; the under jaw is absent, and the inferior margin of the mouth is formed by the anterior extremity of the tongue bone; the eyes are concealed; the branchiæ are on each side with internal ducts leading to the œsophagus. For full details see the papers of J. Müller, in the "Transactions of the Berlin Academy" for 1834, 1838, 1839, and 1842. In the genus *myxine* (Linn.) 2 spiracles approximate on the lower surface behind the branchiæ, each receiving the external ducts of the 6 branchiæ of its own side. The common myxine or glutinous hag (*M. glutinosa*, Linn.) has a smooth eel-like body, with a very long dorsal fin continued round the tail to the vent, a single spiracle on the head, and 8 barbules around the mouth; the color is bluish brown above and whitish below; the length is from 6 to 15 inches. Linnæus placed this animal among worms, regarding the 2 lateral parts of the tongue as transverse jaws, which do not occur in vertebrates. The specific name is derived from the great quantity of viscid mucus secreted by the cutaneous glands whose pores open along the under surface of the body; the spinal column is a soft and flexible cartilaginous tube, with no division into rudimentary vertebræ. It is called borer from its habit of eating into the bodies of other fish which have been caught on hooks, entering the mouth or other part of the surface, and in this way is often annoying to fishermen during spring and summer. It is found along the coast of Great Britain and in the northern seas. In the genus *heptatrema* (Dum.) or *bdellostoma* (Müll.) there are 6 or 7 branchiæ on each side, each with an external spiracle; the eyes are very small, conspicuous through the skin. It resembles the preceding genus in internal structure, and attains a larger size; it is found in the southern seas, preferring rocky bottoms, where it lies in wait for fishes; it is active, and has remarkable powers of emitting mucus from the skin. The only species described (*B. Forsteri*, Müll.) is one that is roasted and eaten by the New Zealanders.

MYZONTS. See Myxinoids.

N

N, the 14th letter and the 11th consonant of the English alphabet. N (*Nun*) was placed immediately after *m* (*Mem*) in the ancient alphabets, either from the affinity of their sounds, or from the association of ideas in their names, *Mem* in Semitic signifying water, and *Nun* a fish. The usual sound of the English N, or that which it naturally has when not affected by the neighboring consonants, is that of a lingual nasal. This is in the English language an original sound, derived without change from the earlier languages. There is, however, an exception in *phenomenon* and similar words, where the final *n*, in the singular neuter, represents an earlier *m*. There is an epenthetic *n* in *bring* (comp. *brought*), *think* (comp. *thought*); also in some words of Latin origin, as *frangible* (comp. *fracture*), *tangent* (comp. *tact*). The letter *n* final, after *l* or *m*, is silent in English, as *condemn*, *kiln*, *column*, *hymn;* but this *n* was originally sounded. The omission of an *n* is sometimes indicated merely by the lengthening of the preceding vowel, as *goose* (Germ. *Gans*), *tooth* (Lat. *dens*, genit. *dentis;* Mœso-Gothic, *tunthus*), *tithe* (comp. *tenth*). The English *n*, when it comes immediately before a palatal mute, as *c*, *ch* (when pronounced like *k*), *g*, *k*, *q*, or *x*, is a palatal nasal, or has the sound of *ng* final. Dr. Worcester, in his quarto dictionary, has made a careful collection of 73 words in which *n* has this palatal sound. In *ng* final, the palatal sound has arisen in the same way, although the sound of *g* has been dropped in English. But the suffix *ing* appears to have arisen from the infinitive termination *an* in the earlier language. The Anglo-Saxon and Latin have the same two nasal sounds of *n* as the English. The Mœso-Gothic and the Greek have the two nasal sounds, but express the palatal nasal by *g*. The Latin of the earliest authors had sometimes *g* and sometimes *n* for the palatal nasal. (See W. Corssen, *Ueber Aussprache der Lateinischen Sprache*, vol. i. pp. 104, 105, Leipsic, 1858.) The Sanscrit language has a great variety of *n* sounds.—In numeration, the Greek N signified 50. Among the Romans, according to some authors, N signified 90; according to others 900, and with a horizontal line above it, 90,000.

NABIS, a Spartan tyrant who raised himself to supreme power on the death of Machanidas in 207 B. C. He caused the young son of the deceased king Lycurgus to be assassinated; the most influential citizens were put to death or banished; the wealthy were subjected to incessant exactions enforced by torture, and one of the tyrant's favorite engines of punishment was the figure of a woman which he called his wife Apega, and which being made to embrace the victim pierced him with spikes projecting from its breast and arms. The money obtained by such oppressive means enabled him to support a mercenary force to crush the spirit of Sparta, attempt the restoration of the Lacedæmonian ascendency in the Peloponnesus, and seize the city of Messene, though he was then actually in alliance with her. He was forced however to withdraw by the Megalopolitan general Philopœmen, but in the next year he returned and reduced the territory of Megalopolis to great distress. On the conclusion of the first Macedonian war, Flamininus, the Roman consul, submitted the question of peace or war with Nabis to a congress of the Grecian allies of Rome held at Corinth in 195 B. C.; and war having been unanimously decreed against him, Flamininus, with a powerful force, invaded Laconia, and laid siege to Sparta. The tyrant made an obstinate defence, but was ultimately constrained to purchase peace by subscribing to the most abject conditions. In 192, having again involved himself in hostilities with the Achæans, once more under the lead of Philopœmen, he applied to the Ætolians for succor. They sent a small force, ostensibly to assist but in reality to overthrow him, and he was soon assassinated by their general Alexamenus.

NABLOOS, or Nabulus, a town of Syria, capital of a circle of its own name in the pashalic of Damascus, 30 m. N. from Jerusalem, in lat. 32° 12′ N., long. 35° 28′ E.; pop. estimated at 8,000. It is situated in a valley at the base of Mt. Gerizim, and is supposed to occupy the site of the ancient Shechem. When restored by the Romans in the reign of Vespasian, it received the name of Neapolis, of which its modern name is a corruption.

NABOB (Hind. *nawaub*), a title of office in India, applied during the Mogul empire to the imperial lieutenant or viceroy of a province. The word is the plural of *naib*, prince, it being a custom of the natives to address all great men in the plural number. The imperial commission conferred upon a nabob the power of bestowing titles below the rank of *omrah* (lord); he was permitted to grant estates subject to confirmation by the supreme authority; he leased the lands to the general farmers, but had no part in the collection of the revenue, except, in case of necessity, assisting the imperial officers with the military force. He had power, for disobedience or crime, to suspend the omrahs from pay till the case was examined at court. In matters of justice there rested an appeal to his tribunal from the *cazi*, or chief justice, though he seldom reversed the decrees of that judge. Disputes where property was not concerned, and where the established laws made no provision, were settled by his authority; but he was forbidden to eject the subjects of the empire from their lands or houses. As the power of the emperors declined, their deputies became independent. They made war upon each other, and the country was perpetually disturbed by their contentions. The English, availing themselves of these dissensions, reduced them in detail to mere pensioners on their bounty.—In the English language the word nabob was introduced when the early adventurers returned to Great Britain from Hindostan, and signifies a man who has acquired great wealth in the East.

NACOGDOCHES, an E. co. of Texas, bounded S. W. by the Angelina river and E. by the Attoyac, which unite at the S. E. corner; area, 886 sq. m.; pop. in 1858, 7,091, of whom 1,694 were slaves. It has an undulating surface, occasionally hilly and broken, and generally well timbered. The soil varies greatly, but is mostly fertile, cotton and corn being the principal crops. The productions in 1850 were 139,110 bushels of Indian corn, 8,849 of oats, 38,260 of sweet potatoes, 1,109 lbs. of tobacco, 43,845 of butter, and 835 bales of cotton. There were 16 churches, and 240 pupils attending public schools. Capital, Nacogdoches.

NADESHDIN, Nicolai Ivanowitch, a Russian author, born in Nijni Bieloomut, Riazan, Oct. 17, 1804, died in St. Petersburg, Jan. 23, 1856. He was the son of a clergyman, and was graduated in 1824 as a doctor of theology at the academy of Moscow. He filled for two years the chair of Russian and Latin literature at the seminary of Riazan, and afterward devoted himself in Moscow exclusively to literary pursuits, chiefly as a journalist. He was appointed professor of archæology at the university of Moscow, travelled in Germany, France, and the Crimea, and embodied the results of his archæological investigations in the memoirs of the Odessa historical and archæological society. In 1836 he left his professorship and the "Telescope" journal in Moscow, and resided successively at Vologda and Odessa. He published a description of his observations in that region in his "Russian Alhambra" (1839), and "Journey through Bessarabia" (1840). In 1840–'41 he explored S. E. Europe under the auspices of the Odessa society, and on his return spent some time in Vienna, where he published an essay on Russian dialects in the *Jahrbücher der Literatur*. In 1842 he was appointed by Pelovsky, the Russian minister of the interior, to conduct the journal published in St. Petersburg under his auspices; and in 1846 he became one of the founders of the geographical society in that city, in which he was made president of the ethnological department. Among his last productions was a Russian translation in 10 volumes of Ritter's *Erdkunde*. He wrote largely for the Russian cyclopædia, and for Senkovsky's "Library."

NADIR, in astronomy, that point of the lower celestial hemisphere directly under our feet, and opposite the zenith. It and the zenith constitute the two poles of the horizon.

NADIR SHAH, or Kouli Khan, a king of Persia, born in the village of Abuver, near Kelat in Khorassan, Nov. 11, 1688, assassinated June 19 or 20, 1747. His father, who belonged to the Toorkish tribe of Affshar, and was a maker of sheepskin caps and coats, died when his son was scarcely 13 years old. At the age of 17 Nadir was taken prisoner in an invasion of Khorassan by the Usbecks, but after remaining in captivity 4 years, escaped and entered the service of the governor of Khorassan, where he attained to high rank. But having been degraded and severely punished by his master, he fled, and, placing himself at the head of a band of robbers, soon became feared for his daring exploits. The civil commotions of the times opened a field for his ambition. The leaders of the Afghan army, which had overrun Persia in the beginning of the 18th century, had dethroned the monarch of the Safian line; but, hated for their cruelty and oppression, their power in the remoter provinces was weak, and Tamasp, the son of the last king, was enabled to maintain a precarious independence. Nadir Shah joined him at Mazanderan in 1727, at the head of 5,000 men, with the declared intention of expelling every Afghan from the soil of Persia. Raised to the supreme command, he took Meshed and Herat, defeated the Afghan king, Ashrif, in a series of bloody engagements, drove him out of the province of Khorassan, pursued the flying army to Ispahan, and finally overtook it at Persepolis. Eventually Ashrif was slain, and his forces were almost entirely cut to pieces. For his services Nadir received from Tamasp in 1730 the four provinces of Khorassan, Mazanderan, Seistan, and Kerman, and assumed the title of Tamasp-Kouli (Tamasp's slave), to which Khan was added by his sovereign. War with the Turks breaking out in 1731, Nadir defeated them on the plains of Hamadan; but returning to quell an insurrection of the Afghans, the imbecile Tamasp took the opportunity of marching against the Turks, and being ingloriously vanquished, signed a treaty of peace in which he ceded to them several provinces. The discontent excited by this treaty was fanned by Nadir, who published a proclamation declaring his intention to carry on the war, and finally dethroned his sovereign, Aug. 16, 1732, and afterward secretly caused him to be put to death. The son of Tamasp, Abbas III., an infant 8 months old, was made the nominal ruler, but died in 1736. An assembly was called to consider the state of the kingdom, at which, it is said, more than 100,000 persons were present; and here Nadir Shah with much apparent reluctance accepted the crown, Feb. 26, 1736. In the mean time he had wrested from the Turks the ceded provinces, and, having concluded a peace, turned his victorious arms upon the Afghans. The province of Candahar was invaded, the city of that name taken in 1738, and his son, Riza Kouli, subsequently crossed the Jihoon or Oxus, and overthrew the ruler of Bokhara and the Usbecks. Afghanistan was soon afterward conquered, and some fugitives having taken refuge in Hindostan, Nadir sent an ambassador to demand them, who with all his suite was murdered by the populace at Jelalabad. The Mogul emperor having refused satisfaction for the outrage, Nadir marched into Hindostan the following year, defeated the Mogul army, and entered Delhi, which at first he treated with singular moderation; but the inhabitants having suddenly risen upon the Persians and killed a considerable number, Nadir ordered a general massacre of the Hindoos in every house in which a murdered Persian was found. The slaughter lasted from morning till noon, and was then suspended by Nadir's orders. The immense treasures, which the Mogul emperors had spent two centuries in amassing, were seized to the amount of $100,000,000, including the Koh-i-noor diamond, and with his plunder Nadir returned to Persia without depriving the Mogul emperor of any provinces except those west of the Indus. In 1740 he forced the sovereign of Bokhara to submit to his power, and then marched against the king of Kharesm, whom he defeated in battle, took prisoner, and put to death. His dominions were extended from the Indus on the east almost to the plains of Bagdad on the west, and from the Persian gulf on the south to the Oxus on the north, thus reviving the ancient glory of the Persian empire. Hitherto he had ruled with moderation, but the latter years of his life were stained by the foulest acts of cruelty. In an expedition against the Lesghis he was wounded by a shot fired at him from a wood; and having been led to believe that it was the work of his son, Riza Kouli, he ordered his eyes to be put out. But, struck with remorse at the act, and filled with fury at his courtiers for not having prevented it, he put to death 50 of them. Subsequently not only individuals, but whole cities, were put to the sword on the slightest suspicion. Liberal in the first part of his reign, he became avaricious as he grew old, and the whole empire groaned under his exactions. At length a number of noblemen, hearing that they were included in a proscribed list, resolved to assassinate the tyrant; and 4 of them, employed about the court, made their way into his tent in the night, and despatched him. In spite of his excesses, his countrymen continue to look upon him with pride and gratitude, as having restored Persia to her independence as a nation. His life was written in Persian by Mirza Mohammed Mahadi Khan, his secretary, and has been translated into French by Sir W. Jones. A detailed account of his career is given by Malcolm in the 2d volume of the "History of Persia," and by Fraser, whose authorities were Persian MSS. (London, 1742).

NÆVIUS, Cneius, a Roman poet and dramatist, born probably in Campania between 274 and 264 B. C., died in Utica, Africa, about 204 or 202 B. C. He served in the first Punic war, settled in Rome, and produced his earliest play in 235, making the stage a vehicle for assailing the aristocracy. For a libel on Q. Cæcilius Metellus, one of the proudest of the patricians, he was cast into prison, and obtained his release by two plays, the *Hariolus* and *Leon*, in which he recanted his calumnies.

Having again offended, he went into exile at Utica, and employed his latter days upon his great epic poem on the "Punic War," a few fragments of which are still extant. Though written in the old Saturnian metre, it was highly appreciated even in the Augustan age, Virgil having adopted several passages from it. The best edition of his few extant fragments is that of Clussmann (Jena, 1843).

NAGASAKI (pronounced *Nangasaki*), a city and port of Japan, on the S. W. side of the island of Kiusiu, in lat. 32° 44′ 8″ N., and long. 129° 51′ 53″ E., 800 m. from Yeddo; pop. about 60,000. The bay of Nagasaki is 7 m. in length by 1 in breadth, and is bounded by high and steep hills on which are numerous batteries of cannon. There are also several fortified islands in the bay, the highest of which is the Papenberg, so called by the Dutch from the fact that, during the persecution of the Christians in Japan, the Catholic priests were thrown from its summit. The harbor comprises 3 safe anchorages: the outer one, west of Papenberg; the second in the middle, E. of that island; and the third at the bottom of the harbor, in front of the city. In all these roads there is sufficient water for the largest vessels. The scenery around Nagasaki is very beautiful, resembling the best parts of the S. coast of England, though on a much grander scale. The city lies along the water's edge, and spreads upward between and among the hills, which are here from 1,000 to 1,800 feet high. The greater part of the houses lie in an ascending valley between two hills, spreading on either hand some distance up the hillsides. The length of the city is about ¾ of a mile, with nearly the same breadth. Three large streams flow from the hills into the harbor, the largest being crossed by more than 20 substantial stone bridges of one and two arches. The hills are so steep that the houses are ranged in tiers one above the other like the seats of a theatre, the floor of one house being on a level with the roof of its next lower neighbor. At frequent intervals flights of stone steps lead upward to temples hidden among shrubbery and trees, and sometimes to tea houses or houses of entertainment and pleasure. Many of the streets are long, handsome avenues, 30 or 40 feet wide, with a smooth, well beaten, and cleanly swept roadway, having a narrow stone pavement in the centre. The houses are mostly neat wooden cottages, each surrounded by a court or garden. The situation of the city is convenient for drainage, and rills of water from the hills flow through all the principal streets. On the 3 large streams there are a few grist mills of rude construction; and on the opposite side of the bay from the city there is a steam foundery managed wholly by native workmen who have been instructed by the Dutch. There are about 50 European and American residents at Nagasaki, which has been open to foreign commerce since July 1, 1859. It is one of the 5 imperial cities of Japan, and is the residence of a governor, who is changed at the end of 3 years. There is a Chinese factory called To-Zin-Jasiki, which forms the southern suburb of the city. Ten vessels are annually allowed to enter the port from China. The internal commerce is extensive, and there are manufactures of porcelain and silk goods.—Nagasaki, about the middle of the 16th century, was a small fishing village, when the prince of Omura, being converted to Christianity, allowed some Portuguese merchants to settle there, and in 1568 built a church and invited the Portuguese missionaries to make it their head-quarters, promising them that no religion but Christianity should be tolerated there. Converts flocked thither, and Nagasaki soon became a considerable city. Shortly afterward, however, the persecution of the Christians began, and in 1621 all the churches were destroyed, and heathen temples built on their sites. By an imperial edict in 1624 all the ports in Japan were closed to foreigners except Firando, where the Dutch and English were allowed to trade, and Nagasaki, which remained open to the Portuguese and Chinese. In 1635 the Portuguese were confined to an artificial island called Desima, formed by throwing rubbish into a shallow part of the harbor, and connected with the shore by a small stone bridge. This island, in shape like a fan, is 236 paces in length and 82 in breadth, and about 4 feet above the water. Its area is 3 acres. In 1638 the Portuguese were wholly banished from Japan, and 3 years later the Dutch merchants were ordered to remove from Firando and establish themselves in Desima, to which for more than two centuries they were closely confined, till the recent opening of Nagasaki to foreign commerce. Their number was limited to 11 men, no foreign women being admitted, and only two ships were allowed to come annually from Batavia with cargoes of sugar, tin, spices, woollens, chintzes, and some small miscellaneous articles, to the amount in all of about $300,000. Desima is still occupied by Dutch merchants, but they are no longer guarded and restricted as formerly.

NAGPOOR, or NAGPORE, a province of British India, in the Bengal presidency, situated betwen lat 17° 50′ and 23° 5′ N., and long. 78° 3′ and 83° 10′ E.; area, 76,500 sq. m.; pop. 4,650,000. It is divided into 5 districts; the principal towns, beside the capital, are Chanda, Ryepoor, Bundara, and Kamptee. The surface is in general elevated, with a slope toward the bay of Bengal. The S. E. part of the territory, comprising about ¼ of the whole, has not been explored by Europeans. It is woody and hilly; the valleys are partially cleared and planted. The rajahs of Nagpoor, sometimes called of Berar, were the rulers of a state which formed a branch of the great Mahratta confederation; but at the death of the last of the dynasty in 1853, the territory was annexed to the British empire. (See BERAR.)—NAGPOOR, the capital, is 440 m. N. E. from Bombay; pop. 111,231. It is 7 m. in circumference, but very straggling; and most of the houses are of mud, roofed with either thatch or tiles. Silk, cotton, and cutlery are manufactured. Nagpoor was an insignificant village in 1740, when the Bhoonslah rajah made it the seat of an independent Mahratta sovereignty.

NAGY-SÁNDOR, József, a Hungarian general, born in Grosswardein in 1804, executed in Arad, Oct. 6, 1849. He early entered the Austrian army, but was living on half pay as a lieutenant of cavalry when the revolution of 1848 broke out. He commanded the cavalry of the Hungarian national guard, distinguished himself in the south of Hungary, especially on Oct. 15, 1848, was active under Görgey in the campaign in the early part of 1849, was promoted to the rank of general, April 6, and was conspicuous for his courage at the siege of Buda. He subsequently commanded on the upper Danube and the Waag. He was a declared friend of republican institutions, and the first to suspect the proceedings of Görgey. He accompanied the latter on his retreat from Comorn in July, on which occasion he and his soldiers were subjected to great sufferings, his corps being greatly cut up at the battle of Waitzen, July 15 and 16, and two days afterward near Felső-Szügy. The army having crossed the Theiss, Nagy-Sándor's division was surprised before Debreczin by an overwhelming force of Russians under Paskevitch, and dispersed after a gallant though short struggle (Aug. 2). He fought once more on the Maros, near Arad. A few days later Görgey's surrender at Világos (Aug. 13) made him a captive in the hands of the Russians, and with his comrades he was surrendered to the Austrians. They were sentenced to death by a court martial, and executed at Arad. He met his fate with heroic calmness. His last words are said to have been: *Hodie mihi, cras tibi.*

NAHANT, a post village, township, and watering place of Essex co., Mass., 10 m. N. E. from Boston by water; pop. in 1855, 270. The township was separated from Lynn in 1853. It is a peninsula, running out about 3½ m. into Massachusetts bay, and consists of two islands connected by a beach ½ m. in length, and united to Lynn by another beach 2 m. in length. The original Indian name of the place, Nahanteu, signifies twins or two things united. The larger of the two islands, called Great Nahant, is 2 m. long and ½ m. broad, and contains 463 acres. At the E. extremity is a large hotel, and numerous cottages are scattered over it, used chiefly as summer residences by the citizens of Boston. In many places the shore is lined by rocks rising 20 to 60 feet above the tide; and there are many singular caves and fissures, the most noted of which are the Swallow's cave and the Spouting Horn. Little Nahant, which lies between Great Nahant and the mainland, rises 80 feet above the sea, and comprises about 40 acres. The isthmus which connects it with Lynn is a narrow beach of sand and gravel so hard that a horse's footsteps scarcely leave a trace. Nahant has long been a favorite watering place during the summer months. E. of Nahant at the distance of a mile is Egg Rock, rising abruptly to the height of 86 feet, and crowned by a lighthouse.

NAHUM (Heb., "consolation"), the 7th of the lesser prophets in order of arrangement of the Greek and Hebrew Scriptures, but the 6th in order of time, born in Elkosh, a village of Galilee, flourished about the beginning of the 7th century B. C. He prophesied in Judah toward the close of the reign of Hezekiah, after the deportation of the 10 tribes, and predicted the destruction of Nineveh and the relief of Judah. He alludes twice to an overthrow of that city, and some have conjectured that he refers to two distinct captures, of which, however, only its final ruin by Cyaxares I. and Nabopolassar in 625 B. C. is historical.

NAIADS (Gr. *ναω*, to swim), in Grecian and Roman mythology, nymphs who presided over fresh waters, and were supposed to inspire those who drank of them with oracular powers and the gift of poetry. They could also restore sick persons to health. They are represented in works of art as beautiful maidens, half draped, and with long hair.

NAIL (Sax. *nægel;* Ger. *Nagel*), a piece of metal, more or less sharp at one end with a head at the other, used to fasten together pieces of wood or other material by being driven into or through them. The principal division of nails is into wrought and cut, the former being made from tough wrought iron, the latter from rolled plates. The different sorts of nails are named either from the use to which they are applied or from their shape, as shingle, floor, ship carpenters', and horse-shoe nails, rose-heads, diamonds, &c. The small, sharp nails used by saddlers and others are called tacks. The small, sharp, taper nails, without heads, used by shoemakers, are sprigs. Those used for nailing floors and ceilings, with head only on one side, which in the cut nail is made in the operation of cutting, are brads. Very large nails are called spikes. The term penny, when used to mark the size of nails, is supposed to be a corruption of pound. Thus, a 4-penny nail was such that 1,000 of them weighed 4 pounds, 10-penny such that 1,000 weighed 10 pounds, &c. Originally, the "hundred" when applied to nails was 6 score or 120; consequently the thousand was 1,200.—The making of nails is one of the oldest of the handicraft arts, probably dating as far back as the art of working metals. Before the invention of machinery an immense number of persons were employed in making the nails required for use, there having been no fewer than 60,000 nailers in the neighborhood of Birmingham alone. It is only within the last 60 years that machinery has been employed to supersede to any extent hand labor in nail making. However, one of the earliest grants from the British patent office was in 1618 to

Clement Dawbeny for an "engine, worked by water, for cutting iron into small bars or rods for making nails." Afterward other machines were invented for forging and drawing nail rods, the form in which the nailer receives the iron. The nailer requires for his trade a small forge fire, an anvil, and several hammers and heading tools, or bores, for the different sorts and sizes of nails. In the United States the making of wrought nails is commonly a part of the blacksmith's business, except the larger bolts and spikes of wrought iron, which are now generally made by machinery. The end of the nail rod is first heated in the forge fire, the smith having two or more rods in at the same time, according to his skill. The body of the nail is then formed on the heated end, and cut off by a chisel fixed in the anvil block. While still hot the nail is placed in a bore, or heading tool, and the head fashioned with the hammer. The bore is a piece of strong iron with a steel knob at each end, perforated to the size of the shank of the nail, and countersunk to correspond with the head. About 1790 the first machine for dispensing with hand labor in nail making was invented in England. It was however only proposed to use water, or other mechanical power, to move hammers and other appliances for making nails similar to those made by hand. The next step in advance was the machine of Thomas Clifford of the city of Bristol, patented in 1790. He used two iron rollers, faced with steel, in which were sunk impressions, or forms of the nails, half of the form being in each roller, and arranged circumferentially, so that a bar of iron, being passed between the rollers, came through a string of nails, the head of one nail being slightly joined to the point of the next; these were then separated by shears or nippers. Sometimes several rows of indentations were made in the surface of the rollers, and, instead of bars, a slip of sheet iron was passed through, and being forced into the dies was formed into nails. Still another method was to form nails by casting, but these were too brittle to be of much service.—Nails made by either of the processes already mentioned were very expensive, and in the United States, where so many wooden structures had to be erected by the settlers, the obtaining of cheap nails was of the utmost importance. It was under the stimulus of this pressing necessity that about the year 1790 ingenious men set to work to invent nail machines. It is difficult at the present day to ascertain who it was that first conceived the idea of cutting nails from slips or rolled plates of iron. At first the nails were cut from a slip or hoop, and headed by a few blows of a hammer while grasping them in a vice worked by the foot. But very soon the machines were made to cut and head the nail at one operation. Between 1794, the date of the first patent, and 1817, more than 100 patents had been issued for nail machines and improvements. The first patent was for a machine for cutting nails, March 28, 1794, to Josiah G. Person, or Pearson, of New York. Jan. 16, 1795, Jacob Perkins of Boston obtained a patent for a cutting machine. The following year patents were issued to Peter Cliff and to Amos Whittemore of Massachusetts, and to Daniel French of Connecticut. The first patent for a cutting and heading machine (Nov. 11, 1796) was granted to Isaac Garretson of Pennsylvania; and on Dec. 12, 1796, a patent for a similar machine to George Chandler of Maryland. Afterward several patents were granted to Jesse Reed, Samuel Rogers, and Melville Otis of Massachusetts, to Mark and Richard Reeve of Philadelphia, to Roswell Noble of Baltimore, and others. The machine invented by Jesse Reed, with some later improvements, is that still most largely used. The manufacture of cut nails was soon established in Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, and Maryland. In 1810 Joseph C. Dyer of Boston, but then a merchant in London, took out patents in England for the nail machinery invented in Massachusetts, and large manufacturing establishments were soon put in operation. Some in the neighborhood of Birmingham are able to make over 40,000,000 nails per week. In 1856 there were in the United States 2,645 machines, producing 81,463 tons of nails. It is quite possible that the persons mentioned above were not the first to invent machines for cutting nails. In "Hunt's Merchants' Magazine" it is stated that Benjamin Cochran, a shop mate of Eli Whitney, who died at Batavia, N. Y., in 1846, made the first machine of the kind about 1790. Many of the first inventors spent large sums of money on their machines. It has been estimated that it cost more than $1,000,000 to bring them to the perfection arrived at in 1810, when a machine made about 100 nails per minute. It was at this time that the full value of this American invention was brought prominently before the world in the well known report of Albert Gallatin, then secretary of the treasury. Large nail factories were early established in different parts of Massachusetts, and at Ellicott's Mills, near Baltimore. At the present day the business is carried on very extensively in the Schuylkill iron region of Pennsylvania. There the pigs from the furnace go immediately to the bloomary, thence to the rolling mill, and so on through the slitting and nail cutting machines, so that all the operations from the crude ore to the finished nail are carried on at the same place.—During the year ending June 30, 1859, the exports of nails from the United States amounted to 4,686,207 lbs., valued at $188,228; and the imports to 860,366 lbs., valued at $84,504.

NAIN, a town of Palestine, mentioned in the New Testament (Luke vii. 11-17) as the place where Jesus raised the widow's son to life. It is situated on the N. slope of Little Hermon, in the pashalic of Akka, separated from Mt. Tabor by the brook Kishon, 42 m. from Jerusalem and 8 m. from Nazareth. It is now an insignificant hamlet of a few families, and is called Nein.

NAIRNSHIRE, a maritime county of Scotland, bounded N. by the Moray frith, E. and S. by Elginshire, and W. by Inverness-shire; area, about 215 sq. m.; pop. in 1851, 9,956. The coast, about 10 m. in extent, is low, sandy, and dangerous. The inland districts are hilly and wooded; those on the sea are well cultivated and productive. The chief rivers are the Nairn and Findhorn. The climate is severe but healthful. Capital, Nairn.

NAKHITCHEVAN, a town of European Russia, in the government of Ekaterinoslav, on the right bank of the Don, 7 m. E. N. E. from Rostov; pop. in 1851, 14,166, mostly Armenians. It stands on an eminence, has manufactures of cotton and silk, and maintains an extensive traffic with Circassia, Astrakhan, Turkistan, and Constantinople, especially in pearls and precious stones. The town was founded in 1780 by a colony of Armenians, and is the seat of the Armenian patriarch of Russia.

NAKHSHIVAN (anc. *Naxuana*), a city of Russian Armenia, on a plateau near the left bank of the Aras, 83 m. S. E. from Erivan, and 175 m. S. from Tiflis; pop. about 5,000. The Armenians regard it as the most ancient city in the world, and as the spot where Noah settled after the deluge; and it formerly contained, according to the Persian annalists, 40,000 houses. In 1840 it was partly destroyed by an earthquake.

NAMES, words by which single objects are denoted. In this article we shall treat only of the names of men, which are commonly termed proper names. These are divided into baptismal or Christian names, and family names or surnames. It is probable that all names were originally significant, though in the lapse of time and the decay of languages the meaning of many of them has been lost. The most ancient names which have come down to us, as for instance those of the early Hebrews, are distinguished for simplicity, a single word only, with rare exceptions, constituting the name, as Abraham, Moses, Aaron, David, and Solomon. The most ancient names of women are equally simple, and with significations peculiarly suited to the female sex, as Rachel, ewe; Deborah, bee; Tamar, palm tree; Hannah, favor, or favorable. The Egyptians, Assyrians, Babylonians, Persians, and Greeks had no surnames. But in Italy, at least in those parts which the Greeks had not conquered, as among the Etruscans, family names were in use, preceded or followed by an individual denomination. The Romans adopted the same system of nomenclature, and also many Etruscan names, as Horatius, Livius, Aulus, Marcus, Publius, Severus. Their system of names was very complete. The whole commonwealth was divided into clans called *gentes*, each of which was subdivided into several families. Thus in the gens Cornelia were included the families of the Scipiones, Lentuli, Cethegi, Dolabellæ, Cinnæ, Syllæ, and others. To mark the different gentes and families, and to distinguish the individuals of the same race, they had usually 3 names, viz., the *prænomen*, the *nomen*, and the *cognomen*. The prænomen denoted the individual, the nomen marked the gens, and the cognomen distinguished the family. Thus, in the name Publius Cornelius Scipio, Publius was what we now call the Christian or given name, Cornelius indicated the clan or gens, and Scipio showed that the individual belonged to the Scipio family of the Cornelii, which derived its name from the pious Scipio, who from his practice of leading about his blind old father was figuratively called *scipio* or the staff. Successful military commanders were sometimes complimented by the addition of a fourth name or *agnomen*, often commemorative of their conquests, as Coriolanus, Africanus, Germanicus. Complexion and other personal qualities often gave rise to cognomens among the Romans, as Niger, black; Paulus, little; Calvus, bald; Cocles, one-eyed; Flaccus, flap-eared; Fronto, heavy-browed. The order of birth originated others, as Quintus, the fifth; Septimus, the seventh. Some were derived from the time of nativity, as Martius, Maius.—The use of surnames in modern times is of comparatively recent origin. As Christianity triumphed over paganism in Europe, the old pagan names were laid aside, and new names derived from Scripture or from church history were given to the converts, sometimes a whole company to save trouble being baptized by the same name, so that Paul, Peter, John, Mary, Margaret, and similar appellations, became so common as to create great confusion and inconvenience. For several centuries nicknames derived from occupations or from personal qualities were used; but as population advanced even these became insufficient, and at length recourse was had to the present system of surnames. Camden and other authorities concur in the opinion that hereditary surnames were not used in England before the Norman conquest; but Mr. Lower, in his "Essays on English Surnames," expresses the opinion that they were not altogether unknown before that epoch. Surnames among the Saxons were in fact sometimes formed from the father's name; as for instance in 804 we find Egbert Edgaring, or Egbert the son of Edgar, *ing* signifying progeny or descendant. Such names as Dering, Browning, Whiting, are supposed to owe their origin to this source, and to mean respectively dear, tawny, and fair offspring. White, Black, Red, Brown, Grey, Good, Cunning, and other characteristic terms were also used as surnames, as we find in the life of Hereward the Saxon the following persons mentioned: Martin Light Foot, so called from his agility; Siward the Red, Wulric the Black, and Leofric Prat or "the Cunning." The place of residence gave rise to some surnames among the Saxons, and became after the conquest one of the most prolific sources of the present English names. A great many surnames occur in Domesday book, some of which are local, as De Grey, De Vernon; some patronymical, as Richardus filius Gisleberti (Richard, Gilbert's son); and others official or professional, as Gulielmus Camerarius (William the Chamberlain), Radulphus Venator (Rodolphus the Hunter), and Gislebertus Cocus (Gilbert the Cook). But it was not until after the 11th century that the practice of making the second name of an individual stationary and transmitting it to descendants began to come into common use. By the middle of the 12th it began to be thought essential that persons of rank should bear some designation in addition to the baptismal name. A lady in the reign of Henry I. is represented by Robert of Gloucester as objecting to marrying a natural son of that king because he had no surname, upon which the monarch gave him the surname of Fitz-Roy, a designation which has often since been given to the illegitimate offspring of the English sovereigns. The prefix of Fitz, a corruption of *fils* (Lat. *filius*), son, was common among the Normans, as Fitz-Gilbert, Fitz-Gerald, Fitz-Henry, Fitz-Hugh. To this day the Russians employ a similar form by the addition of *vitch* to their names, as Paul Petrovitch (Paul the son of Peter); a practice also common among the Servians and other Slavic nations. During the middle ages many surnames were formed among the Jews in like manner by using the Hebrew *ben* or Arabic *ibn*, as for instance Solomon Ben-Gabirol (Solomon the son of Gabirol), a poet of the 11th century; and Abraham Ibn-Esra (Abraham the son of Esra), a philosopher of the same period. The existing well known Jewish name of Bendavid had its origin in the same custom. In Wales, until a recent period, *ap* or son was the only surnominal adjunct used, as David ap Howell, Evan ap Rhys, John ap Richard, names which are now corrupted into Powell, Price, and Pritchard. Many names beginning with P now in common use in England and America can be traced to this Welsh origin, as Pumphrey from Ap Humphrey, Parry from Ap Harry, and Pugh from Ap Hugh. It was not unusual in Wales even as lately as the middle of the 17th century to hear of combinations carried up through several generations, as Evan ap Griffith ap David ap Jenkin ap Hugh ap Morgan ap Owen, so that a man carried his pedigree in his name. In forming surnames from the patronymic the Welsh did not, like the English, use an affix, as John Adamson, but put the paternal name in the genitive, as Griffith William's, or as now written Williams, David John's or Jones, Evan Harry's or Harris. In consequence of this custom, and of the fewness of personal or Christian names, their adoption as surnames has become common to so many families that Wales to this day suffers under the inconvenience and confusion of a paucity of names. In Scotland, among the Gaelic inhabitants, the term *mac* was used in the same manner as the *ben* of the Hebrews and the *ap* of the Welsh, to signify son of, as Macdonald and Macarty, meaning respectively the son of Donald and the son of Arthur. The Irish also used *mac* for the same purpose, as well as *oy* or *O'*, signifying grandson, as O'Hara, O'Sullivan. It has been asserted that in the reign of Edward II. an attempt was made by act of parliament to enforce the practice of using family names in England; but as population increased it is probable that common convenience led necessarily to their use. The Anglo-Saxons had a great variety of baptismal names, which mostly became obsolete after the conquest, being superseded by Scripture names introduced by the Normans, such as John, James, Thomas, and Peter, which soon became so numerous that surnames were indispensable. They were not well settled, however, among the lower and middle classes until after the reformation, when the introduction of parish registers of births, deaths, and marriages contributed greatly toward giving them permanence. But so late as the beginning of the 18th century many families in Yorkshire had no fixed surnames. Even at this day it is said that few of the miners of Staffordshire bear their fathers' names, but are only known by some sobriquet. Nicknames, in fact, prevail so extensively among the colliers, that for every-day purposes no other names are used; and a man whose real name is John Smith may be known to his neighbors and even to his wife and children only as Nosey, Soaker, Lumper, Jiggery, or some such designation. A large class of English surnames are of local origin, and express the country or estate or residence of those who originally bore them, as Burgoyne, from Burgundy; Cornish, Cornell, Cornwallis, from Cornwall; Fleming, from Flanders; Gascoyne and Gaskin, from Gascony; Hanway, from Hainault; Janeway, from Genoa; Mayne, from the French province of Maine; Polack, from Poland; Wales, Welsh, Walsh, and Wallis, from Wales; Clare and Ross from those counties; Chichester, Rochester, Carlisle, Lincoln, Hastings, Huntington, Hull, Poole, and Wells, from those towns; Compton, Coombs, Clayton, Deane, Preston, Sutton, Waldron, and Washington, from villages in the county of Sussex. Camden remarks that there is not a single village in Normandy that has not surnamed some family in England. The French names introduced at the conquest may generally be known by the prefixes *de*, *du*, *des*, *de la*, *St.* or *Saint*, and by the suffixes *font*, *ers*, *faut*, *beau*, *age*, *mont*, *ard*, *aux*, *bois*, *ly*, *eux*, *et*, *val*, *court*, *lay*, *fort*, *ot*, *champ*, and *ville*. From Normandy came Mortimer, Warren, Percy, Gurney, Devereux, St. Maure (corrupted into Seymour). The names Hill, Dale, Forest, Wood, and the like, came from the nature or situation of the original bearer's residence. The prefix *atte* or *at*, softened to *a* or *an*, has assisted in the composition of many names; thus, if one dwelt on a moor, he would style himself Attemoor or Attmoor; if near a gate, Attegate or Agate. John atte the Oaks was gradually corrupted into John Noaks; Peter at the Seven Oaks into Peter Snooks; Nash is a corruption of Atten-Ash, and Nye of Atten-eye, or at the island. *By* and *under* were used as prefixes to form names indicative of residence, as Byfield, Byford, Underhill, Underwood. The following are some of the words in old English which signify objects from which names frequently originated: *applegarth*, an orchard, whence Applegate, Appleton; *armitage*, a hermitage; *back*, a ferry, and also sometimes a wharf; *baine*, a bath, whence Bayne and Baynes; *barrow*, a hill; *barton*, a curtilage or courtyard; *beck*, a brook; *bent*, a plain or common; *borough*, whence Boroughs, Brough, Burg, Burke, and Borrow; *bottom*, low ground or valley, whence Shufflebottom, originally Shaw-field Bottom, and Higginbottom, from *hickin*, the mountain ash; *bridge*, whence Bridges and Briggs; *chase*, a forest or hunting ground; *clive*, a cliff, whence Cleve or Cleave; *clough*, a ravine or narrow glen; *cobb*, a harbor; *garth*, a yard; *garnett*, a granary; *gore*, a narrow slip of ground, a word still used in that sense in America; *grange*, a farm, whence Granger; *holme*, *holmes*, a meadow surrounded by water; *holt*, a grove or hill covered with trees; *knapp*, the top of a hill; *lee*, *lea*, *legh*, *leigh*, a pasture; *lynch*, a thicket; *march*, a boundary; *penn*, the top of a hill; *peel*, a moated fort; *rowe*, a street; *ross*, a heath, a morass; *shaw*, a small wood or copse; *stead*, a place; *stowe*, a place; *thorpe*, a village; *wade*, a meadow, and also a ford; *weller*, a hollow or gulf; *wold*, an undulating country; and lastly *yate*, a gate, whence Yates. "After these local names," says Camden, "the most in number have been derived from occupations or professions." Of these the most notable is the name of Smith, the root of which is the Anglo-Saxon *smitan*, to smite. It was applied originally not merely to blacksmiths, but also to wheelwrights, carpenters, masons, and smiters in general. The "Saxon Chronicle" speaks of "mighty war smiths who overcame the Welsh." Nasmyth is probably a corruption of nail smith. Arrowsmith was a maker of arrow heads. Smith in Gaelic is *gow*, and the Gows were once as numerous in Scotland as the Smiths in England. Many of them in modern times have translated the name to Smith. McGowan is the same as Smithson. Among the names derived from occupations, the most common ones explain themselves, as for instance Mason, Baker, Butler, Coleman (coalman), Taylor, Draper, Farmer, Shepherd, Chapman (a trader, chepeman, from *chepe*, a market), Cowper (cooper), Cutler, Wheeler, Miller, Gardner, Cook, Porter, Mercer, and Fidler. Sutor, a name still known in England and America, is the Latin, Saxon, and old English for shoemaker. Latimer is from *latiner*, a writer of Latin; Barker means tanner; Jenner is an old form of joiner, and Milner of miller. Lorimer is a maker of spurs and bits for bridles; Arkwright, a maker of chests; Lander, a contraction of *lavandier*, a washerman; Tucker, a fuller; Banister, the keeper of a bath; Kidder, a huckster or peddler; Wait, a minstrel; Crocker, a maker of pottery; Tupman and Tupper, a breeder of tups, that is, rams, or perhaps a maker of tubs. Hopper had the care of swans, the searching for and marking swans being called swan-hopping; the word also in Anglo-Saxon meant a dancer. Lardner is an obsolete word for swineherd. Many of this class of names have the Anglo-Saxon feminine termination, as Baxter and Bagster, the feminine of baker; Webster, of Webber or weaver; Brewster, of brewer. This is owing to the fact that these occupations were first followed by women, and when men began to invade them they kept the feminine appellations for some time, as men-milliners now do. The trade of weaving has been carried on by a Sussex family named Webb since the 13th or 14th century. From offices and dignities many English surnames are derived, as for instance King, Prince, Earl, Lord, Knight, Bishop, Prior, Abbot, Pope, Priest, Deacon, Squire, Franklin, Bailey, Chamberlain, Falconer, Leggett (legate), and Steward or Stuart. Many of these names were doubtless given to bastards or applied in jest, especially those of Pope, King, Bishop, and Abbot. From *dispensator* or dispenser, a steward, comes Spencer. Grosvenor anciently held the place of *gros veneur* or grand huntsman to the dukes of Normandy. Sumner was a summoner, who cited delinquents to the ecclesiastical courts. The termination *ward* indicates a keeper, as Durward, a doorkeeper; Hayward or Hereward, a keeper of the town cattle; Woodward, a forest keeper. Color and complexion have given rise to such names as Black, White, and Brown. As no person ever had a green face, the name Green must have been given on account of the bearer's verdancy, or from the local circumstance of living near the village green or common. The very common name Read, Reed, or Reid is an old spelling of red. Gray, Hoar, Long, Short, Longfellow, Longman, Tallman, Small, Strong, Lightfoot, and Heavyside are from personal characteristics. Hubbard and Joyce, the one Anglo-Saxon, the other French, were persons of a joyous nature. Hogarth is from the Dutch, high-natured, generous. Rush is subtle; Barrat, cunning; Bowne, ready; Bonner, kind, gracious; Eldridge, wild, ghastly. Many Welsh names naturalized in English are from personal characteristics, as More, great; Duff, black; Vaughan, little; Mole, bald; Fane, slender; Gough, red. Beside the Christian or baptismal names that have been taken as surnames, as Thomas, Henry, and Andrew, Bennett is derived from Benedict, Bryant from Brian, Emerson, Emery, and Amery from Almeric, Austin from Augustine, Durant from Durandus (whence also the Italian Durante or Dante), Ellis from Elias, Everett from Everard, Hode, Hoad, and Hood from Odo or Otho, Hamlin from Hammeline, Jarvis from Gervaise, Stiggins from Stigandus or Stigand, Terry from Theodoric, Tudor from Theodore. A single Christian name has sometimes given rise to many surnames, as from William came the following: Williams, Williamson, Wills, Wilks, Wilkins, Wilkinson, Wickens, Wickeson, Bill, Bilson, Wilson, Woolcock, Woolcot, Wilcocke, Wilcox, Wilcockson, Wilcoxon, Willet, Wilmot, Willy, Willis, Wyley, Willott, Till, Tillot, Tilson, Tillotson, Tilly. Many surnames, apparently meaningless in the present English, were significant in old English and in provincial dialects. For example, Brock means a badger, Todd a fox, Talbot a mastiff, Culver a pigeon, Bisset a wild pigeon, Henshaw a young heron, Coke a cook. Fisk is the Anglo-Saxon form of fish. Such names as Lyon, Leppard, Hawke, Raven, and Heron have been taken from the devices on shields and signs. Camden says: "Many names that seem unfitting for men, as of brutish beasts, &c., come from the very signs of the houses where they inhabited; for I have heard of them which said they spake of knowledge, that some in late time dwelling at the sign of the Dolphin, Bull, Whitehorse, Rocket, Peacock, &c., were commonly called Thomas at the Dolphin, Will at the Bull, George at the Whitehorse, Robin at the Rocket; which names, as many others of like sort, with omitting at, became afterward hereditary to their children." Such, too, was doubtless the origin of the names Homer, Tully, Cato, and Cæsar, whose effigies on booksellers' and other shops have given rise to surnames yet used in England.—Nearly all that has been said of English surnames is applicable to those of the United States, where however a few peculiar names have been formed by corruption or translation of foreign names, as Bunker from the French Bon Cœur, Bumpus from Bon Repos, Bellows from Belle Eau, and Cisco from Francisco. A vast number of Dutch, German, French, Swedish, and Norwegian names have been introduced by the foreign immigration. The Dutch names are most common in the state of New York, and those of the north of Europe in the N. W. states. The aboriginal languages have contributed a little to the American stock of surnames, the civilized tribes, as those of New England and New York and the Creeks, Cherokees, and Choctaws, having generally adopted their use; and the African languages have also supplied a few, as for instance that of Cuffee, which has been borne by a noted sea captain, and his son, a preacher of the gospel.

NAMUR, a province of Belgium, bounded N. by Brabant, N. E. by Liége, E. by Luxemburg, S. by France, and W. by Hainault; area, 1,411 sq. m.; pop. in 1856, 286,075. The principal rivers are the Meuse, Sambre, and Lesse. The surface is very much diversified, and the soil is in general fertile. Iron, lead, coal, and marble are mined. The number of coal mines in operation in 1857 was 28. This province is divided into 3 arrondissements, Namur, Dinant, and Philippeville, which are subdivided into 15 civil and 16 military cantons.—Namur, the capital, is situated at the confluence of the Sambre and Meuse, 67 m. S. E. from Brussels; pop. in 1856, 22,218. It is strongly fortified. The cathedral, a modern structure, is ornamented in front with 20 Corinthian columns, and beside the great altar stand colossal statues of the apostles Peter and Paul. The staple manufactures are cutlery, for which Namur is famous, and leather, which occupies nearly 1/15 of the population. The town was taken by Louis XIV. in 1692, and by William III. of England in 1695. In 1784 Joseph II. of Austria demolished its fortifications, which in 1817 were restored by the king of the Netherlands.

NANCY, a city of France, capital of the department of Meurthe, on the left bank of the river Meurthe, 220 m. E. from Paris; pop. in 1856, 43,452. It stands in a beautiful and fertile plain, and consists of an old and a new town. The many fine edifices, squares, and promenades render Nancy one of the handsomest of French towns. The chief edifices are the cathedral, a handsome modern structure, with two towers over 250 feet high; the church of St. Epore, which contains several fine paintings, and a fresco attributed to Da Vinci; the church of the Cordeliers, in which is the mausoleum of the dukes of Lorraine; an ancient Gothic castle, now a barrack; the university, which has a library of 23,000 volumes; the theological college; the museum, with pictures by Isabey, a native of Nancy, and other works of art; a medical institute, and hospitals. Hosiery, muslin, cotton yarn, woollen cloth, calico, lace, &c., are manufactured. There are 3 fairs yearly, one of which lasts 20 days. Nancy was the capital of the duchy of Lorraine from the 13th century till its absorption by France; and under its walls Charles the Bold, duke of Burgundy, was defeated and slain in 1477 by René II., duke of Lorraine.

NANDOU. See Ostrich, of which it is a South American species.

NANKEEN, a fabric manufactured in China of a buff-colored cotton, and much esteemed for its durability and the permanency of its hue, which is natural to the material and not the effect of a dye. Imitation nankeens have been largely manufactured in Manchester, England, by dyeing the white cotton, and they have even been exported to Canton; but they are much inferior to the genuine Chinese article.

NANKING, or Nankin (*i. e.*, the "southern capital," in distinction from Peking, the "northern capital"), called also Kiang-ning-fu, a city of China, the chief town of the province of Kiang-su, and the residence of the governor-general of 3 provinces, situated about 3 m. S. of the Yang-tse-kiang river, 90 m. from its mouth, and on the grand canal connecting Canton and Peking, in lat. 32° 2′ N., long. 118° 49′ E.; pop. estimated by Ellis at 400,000, which is probably under the true amount. The river opposite the city is 1⅓ m. broad and 25 fathoms deep, with a rocky bottom, and a current of from 3 to 5 m. an hour. Though the city lies

3 m. from the bank of the Yang-tse-kiang, a part of the walls, which are 18 m. in circumference, approach within 700 yards of the water. The principal streets are of moderate breadth, clean, well paved, and lined with handsome shops; but the houses are in general mean, and only one story high. This city was formerly the capital of China, and of much greater extent than at present; but since the conquest of the empire by Kublai Khan, in the latter part of the 13th century, and the removal of the imperial residence to Peking, it has very much declined. The part of Nanking occupied by the Mantchoos is separated by a cross wall from the Chinese town. The most remarkable structure in Nanking was the pagoda called by Europeans "the porcelain tower," built A. D. 1411–'30, of an octagonal form, 261 feet high, in 9 stories, each adorned with a cornice and gallery, and covered with a roof of green tiles, with a bell suspended at each corner that sounded when moved by the wind. On the top was a pinnacle in the shape of a pineapple, surmounted by a gilded ball; and a spiral staircase inside led to the summit. This famous edifice was blown up by the Tai-ping rebels in 1856. In the city there are extensive manufactories of satin and crape, and of the cotton cloth known as nankeen. Paper and ink of fine quality, and beautiful artificial flowers of pith paper, are also made. Nanking is celebrated for its scholars and its literary character, having many large libraries and booksellers' shops.

NANSEMOND, a S. E. co. of Va., bordering on N. C. and the Dismal Swamp, and drained by branches of the Nansemond river; area, 444 sq. m.; pop. in 1850, 12,283, of whom 4,715 were slaves. It has a level surface and sandy soil. Lumber, tar, and turpentine are exported in considerable quantities. The productions in 1850 were 352,842 bushels of Indian corn, 186,324 of sweet potatoes, 8,671 lbs. of wool, and 3,338 tons of hay. There were 7 saw mills, 4 grist mills, 1 cotton mill, 19 churches, and 298 pupils attending public schools. The value of real estate in 1856 was $1,703,654, showing an increase of 16 per cent. over 1850. The Portsmouth and Roanoke railroad passes through the capital, Suffolk.

NANTASKET, a narrow peninsula about 5 m. long, extending into Massachusetts bay, in Plymouth co., Mass., about 22 m. from Boston by railroad and 9 m. by water. It is a favorite summer resort on account of its fine facilities for sea bathing. This peninsula comprises the town of Hull, which was settled about 1625, and in 1855 had 292 inhabitants.

NANTES (anc. *Condivincum*), a maritime city of France, capital of the department of Loire-Inférieure, on the right bank of the Loire, 270 m. S. W. from Paris; pop. in 1856, 108,530. It is partly situated on the mainland, partly on 3 islands formed by the branches of the Loire. The principal edifices are the cathedral of St. Pierre, the castle, a vast Gothic pile, the exchange, theatre, court house, museum, college, medical institute, infirmary, and a library of 30,000 volumes. The quays are magnificent, extending along the Loire and Erdre nearly 2 m., lined with trees and adorned with elegant mansions. There are considerable cotton and woollen manufactories. Nantes is the seat of a bishop. It is a place of great antiquity, having been in pre-Roman times the capital or principal stronghold of the Nannetes or Namnetes. In the middle ages it was the capital of the dukedom of Brittany, which became united to France through the marriage of Anne, the last duchess, to Charles VIII. It subsequently became the head-quarters of the Huguenots, and here was promulgated in 1598 the famous edict of Henry IV., which secured religious liberty to the French Protestants. The edict was revoked by Louis XIV., Oct. 22, 1685.

NANTUCKET, the southeasternmost co. of Mass., comprising the island of Nantucket, together with the small islands of Tuckanuck, Muskejet, and the Gravel islands, lying in the Atlantic ocean; total area, 60 sq. m.; pop. in 1855, 8,064; in 1860, 6,100, nearly all included in the town of Nantucket. The principal island, Nantucket, is of an irregular triangular form, about 15 m. long E. and W., with an average breadth of 4 m., and an area of 50 sq. m. It has a level surface to the S., and is hilly in the N.; the soil is generally sterile, and much of the land held in common. In 1855 it contained 7 establishments for the manufacture of oil and sperm candles, producing 970,828 galls. whale and 67,516 galls. sperm oil, value $768,529, and 142,450 lbs. of sperm candles, value $17,405; 2 soap and candle factories, and various other establishments. The agricultural productions were 7,980 bushels of Indian corn, 7,776 of potatoes, 7,752 of turnips, 24,152 lbs. of butter, and 3,029 of wool. In 1850 there were 9 churches, 2 newspaper offices, and 1,230 pupils attending public schools. On the S. E. of the island are the Nantucket shoals, about 50 m. long by 45 wide, on which many vessels have been wrecked. The island was first settled by whites in 1659, when Thomas Macy, to escape persecution, took refuge there with his family, having purchased it for £30 and 2 beaver hats.—NANTUCKET, the capital of the above county, is situated on the N. side of the island, lat. 41° 16′ 56″ N., long. 70° 06′ 12″ W., 50 m. S. E. from New Bedford, and 105 m. S. S. E. from Boston. It has a deep and secure harbor, formed by two projecting points of land, on one of which is a lighthouse, with an entrance about ¼ m. wide. The bar has 7½ feet at low water. It is principally noted for its connection with the whale fisheries, of which at one time it was the leading mart in the world. In 1672 a license was obtained by one of the inhabitants, by which he was permitted to carry on the whale fishery on payment of 5 shillings for each whale caught, those animals then being numerous on the coast and successfully pursued from the shore in boats. Subsequently large vessels were employed and voyages made for the purpose, and this great industry opened to the competition of the world. As early as 1746 ships were sent as far as Davis's straits, and in 1774 to the coast of Brazil. The first ship that went on a whaling voyage to the Pacific ocean sailed from Nantucket in 1791. At the time of the breaking out of the war of the revolution there were 150 vessels belonging to the island engaged in the business; and after its close the flag of the new republic was first seen in the river Thames flying at the masthead of a Nantucket ship. For the last 20 years the prosperity of the town has been diminishing. Its aggregate tonnage, which in 1844 was 27,230, in 1859 was only 12,234, of which 10,297 was engaged in whaling. In 1846 a conflagration destroyed 350 buildings, valued with their contents at $900,000. In 1855 the receipts of sperm oil were 175,700 galls., value $251,572; of whale oil, 261,739 galls., value $146,049; of whalebone, 81,752 lbs., value $32,306. There were 44 vessels employed, with a tonnage of 14,266, and a capital of $1,432,600. The village of Siasconset, at the S. E. extremity of the island, 7 m. from the town of Nantucket, is a noted watering place, and is much resorted to in the summer by invalids.

NAPA, a N. W. co. of Cal., drained by Napa and Los Putas rivers; area, 560 sq. m.; pop. in 1858 estimated at 4,500. The surface is diversified, but generally fertile and well adapted for cultivation. The Coast range of mountains extends along the S. W. border, and Mount St. Helen, at the head of the Napa valley, attains an elevation of 3,500 feet. It contains numerous medicinal springs, constantly increasing deposits of sulphur, two lakes yielding large quantities of borax, geysers or hot springs about 60 m. N. of Napa City, and a "glass mountain," discovered in 1857, reported to be composed of materials susceptible of easy manufacture into that article; and a quicksilver mine has recently been opened. The productions in 1858 were estimated at 500,000 bushels of wheat, 150,000 of barley, 50,000 of oats, and 50,000 of Indian corn. In the same year 1,000 galls. of wine were made. There were 5 grist mills and 6 saw mills, and the assessed value of property was $3,015,911. Capital, Napa City.

NAPHTALI (Heb., my wrestling), the 6th son of Jacob, by Bilhah the handmaid of Rachel. In the blessing which Jacob gave his children before he died, the patriarch called him "a hind let loose," adding that "he giveth goodly words;" a passage which has greatly perplexed commentators. In the allotment made to the tribes after the entrance into Canaan, the tribe of Naphtali received a part of upper Galilee on the W. of the Jordan, extending from Lake Gennesareth to the sources of the Jordan. It is distinguished in the song of Deborah for the alacrity with which it obeyed the call to arms against the oppressors of the Hebrews.

NAPHTHA, a term rather loosely applied to mixtures of different hydrocarbons, which constitute either the natural rock oil (see PETROLEUM), or the different oils obtained by the destructive distillation of carbonaceous substances. It is sometimes limited to the lighter oils, and sometimes the heavy oils which come over last in the distillation are called heavy coal naphtha. Wood naphtha is the light volatile fluid first obtained in distilling crude pyroligneous acid. It is also known as wood spirit, pyroxylic spirit, methylic alcohol, and hydrous oxide of methyle, all which names are more appropriate than naphtha, as the compound is of alcoholic character, containing oxygen, which the true hydrocarbons do not, and is represented by the formula C_2H_3O,HO. The naphtha in use for preserving potassium and sodium from access of oxygen, and for a solvent of various gums and other substances, is obtained from petroleum or from artificially prepared coal oils by first treating them with sulphuric acid, and next with a caustic alkali, and then distilling off the more volatile portion, which is the naphtha, represented by the general formula C_nH_n. But even this is a compound of hydrocarbons, Pelletier and Walter separating from it by distillation three liquids distinguished from each other by their composition and the degrees of their boiling points. They called these, in the order in which they were obtained, naphtha, $C_{14}H_{14}$, boiling point 194°; naphthene, $C_{16}H_{16}$, boiling point 239°; and naphthole, $C_{24}H_{22}$, boiling point 374°. The evident relation between the boiling points would seem to imply the existence of two other members of the series between the last two named.—As commonly described, naphtha is a very inflammable colorless liquid, of bituminous odor, tasteless, soluble in all proportions in absolute alcohol and in ether, insoluble in water, of specific gravity .700 to .847. It dissolves the fixed and essential oils in all proportions, and is hence advantageously used for removing grease from fabrics. It also dissolves sulphur, phosphorus, iodine, gum lac and copal, camphor, caoutchouc, the resins, &c.; a quality that adapts it for the preparation of varnishes, and for other similar uses in the arts. In its preparation from artificial coal oils it is found that those which produce paraffine yield in general naphtha, while the product of those which contain naphthaline is rather limited to the hydrocarbons of the benzole series. Naphtha has been used as a remedy in cases of consumption, and by some practitioners is preferred to cod-liver oil as a source of carbon.

NAPHTHALINE, a hydrocarbon ($C_{20}H_{8}$), obtained in crystalline plates or scales from the distillation of the last portions of coal oil derived from certain bituminous substances, generally from those which do not yield paraffine, though the two are sometimes produced from the same crude material. It is a substance but slightly soluble in hot water, but dissolves in the volatile oils, and in ether. It distils over with water, and in the open air evaporates like camphor. It fuses at 176° into a colorless liquid, and boils at 418°. Its specific gravity is about 1.05.

NAPIER, Sir Charles, a British admiral, born in Merchiston hall, Stirlingshire, March 6, 1786, died Nov. 6, 1860. He was a grandson of the 5th Lord Napier and a descendant of the inventor of logarithms. He entered the navy in 1799 as a volunteer on board the sloop of war Martin; in 1805 was appointed lieutenant; in 1808 commanded the brig Recruit of 18 guns; and in April, 1809, for the gallant manner in which he aided in the chase of a French squadron, resulting in the capture of the Hupolt, 74, as also in the reduction of Martinique, he was made a post captain. He subsequently served a campaign with the British army in Portugal, and was present at the battle of Busaco; and between Nov. 1811, and June, 1815, he participated in numerous gallant exploits on the coast of southern Italy and the North American station. After a long period of inactivity he was in 1829 employed in special service on the coast of Portugal, and in 1833 was appointed by Dom Pedro to command the Portuguese fleet destined to operate against Dom Miguel. On July 3, 1833, he gained a signal victory over the enemy off Cape St. Vincent, capturing two ships of the line, a frigate, and a corvette, for which he was created Count Cape St. Vincent, grand cross of the tower and sword, and a grandee of the first class in Portugal; but having subsequently experienced unjust treatment from the Portuguese government, he returned to England, and, in Jan. 1839, was appointed to the command of the Powerful, 84. In the succeeding year he hoisted his broad pennant on board the ship, and became second in command under Sir Robert Stopford of the fleet employed on the coast of Syria. Among the important achievements in which he participated during the war with Mehemet Ali were the storming of Sidon and the capture of Beyroot and Acre, where his services, which he took care to estimate at their proper value, were of the most distinguished character. In the same year he was created a K.C.B., beside receiving several continental decorations; and subsequently he was appointed rear admiral of the blue, and held command of the channel fleet for two years. In 1849 he was superseded, but upon the breaking out of war with Russia he was put in command of the fleet destined to act against Cronstadt and other Russian ports in the Baltic. He sailed from Spithead, March 11, 1854, with the most magnificent fleet ever equipped by Great Britain, promising to take Cronstadt in a month, and, as an earnest of his intentions, telegraphed to his crews to "sharpen their cutlasses," and signalled for large quantities of chloroform in anticipation of the many severe engagements likely to be encountered. His return to England in December, without having accomplished any thing of importance beyond the capture of Bomarsund, subjected him to considerable ridicule, and led to many angry recriminations between himself and the Aberdeen ministry, by whom he complained that he had been fettered in the discharge of his duties. After that time he held no important command. As a controversial writer on subjects connected with his profession, he was distinguished by the pungency and personality of his remarks, by an overweening vanity, and frequently also by sterling common sense, particularly in his suggestions on the subject of naval reform, several of which, including those on the abolition of flogging and the introduction of a system of registration, have been adopted by the admiralty. A collection of letters on naval reform, contributed to the "Times" and other journals, was published by him in 1851 under the title of the "Past and Present State of the Navy." He was also the author of "Administration of Sinde," the "War in Portugal between Pedro and Miguel" (2 vols. 8vo.), and the "War in Syria" (2 vols. 8vo.). In 1832 and 1837 he unsuccessfully contested the boroughs of Portsmouth and Greenwich; between 1841 and 1847 he represented Marylebone in parliament; and after 1855 he sat for Southwark. As a legislator he was an active debater on the liberal side. After 1858 he held the rank of admiral of the blue.

NAPIER, Sir Charles James, a British general, born in Whitehall, London, Aug 10, 1782, died at Oaklands, near Portsmouth, Aug. 29, 1853. At an early age he received an ensign's commission in the 4th regiment of foot, with which he first saw active service during the Irish rebellion of 1798. In 1806 he held the rank of major in the 50th regiment of foot, and two years later was ordered to the Peninsula, where he participated in the retreat of Sir John Moore, ending in the battle of Corunna. In this encounter, while leading a handful of men into the thickest of the fight, he received 5 severe wounds, and was left for dead in the hands of the enemy. By skilful treatment he was restored to health, and returned to England on parole in the spring of 1809, to the astonishment of his friends, who had already administered upon his estate. Not succeeding at once in procuring employment, he turned his leisure to account by writing pamphlets on a variety of subjects, his mind being of so active a character that "whenever he was not fighting he was writing." He finally went to the Peninsula as a volunteer, had two horses shot under him at Coa, and at Busaco received a ball in the jaw which he rode 100 miles to have extracted. In 1811 he procured through the influence of Wellington a regular command, and served with credit until the close of the war. Immediately afterward he was sent to Bermuda as lieutenant-colonel of the 102d regiment, and for some months participated in expeditions which harassed the coast of the United States. The return of Napoleon to France recalled him to Europe, but to his extreme disappointment he arrived a day or two too late to participate in the battle of Waterloo. For several years subsequent he pursued a course of study at the military college of Sandhurst, and in 1825 was appointed governor of Cephalonia, where he remained 5 years, gaining the affections of the inhabitants, but failing to satisfy the ministry, by whom he was somewhat suddenly recalled. During this interval he was a correspondent and ally of Byron in the agitation for Greek independence; but his recommendations were disregarded by the Greek committee in London. After a long period of inactivity, he was appointed commander of the forces in the northern district of England, whence in 1841 he was transferred to the command of the army in Bombay. He commenced his Indian career by a number of sweeping reforms in the service, in which, being no respecter of persons, he encountered the dislike of his officers, many of whose luxuries and privileges he abridged or entirely abolished. Upon the arrival of Lord Ellenborough in India in Feb. 1842, as governor-general, he sketched out for him the plan of a second Afghan campaign; and in the early part of the succeeding year he was called upon to take the field against the ameers of Sinde, who, deceived as to the strength and resources of the British government by the result of the Cabool expeditions, were beginning to assume a defiant attitude. The Sindian war, which Sir William Napier called "the tail of the Afghan storm," was commenced by a rapid march across a desert to the fortress of Emaun Ghur, one of the chief strongholds and magazines of the ameers, which was blown up—an exploit highly commended by the duke of Wellington in parliament, in moving a vote of thanks to Gen. Napier. On Feb. 17, 1843, with a force of less than 2,000 men, he attacked an army of 35,000 Beloochees at Meeanee (his maxim in Indian military operations being never to give way before barbarians, whatever might be the disparity of numbers), and after an obstinate conflict gained a complete victory with a loss of 270 killed and wounded. Upward of 6,000 of the enemy fell, most of whom were killed, as no quarter was given; and 6 of the ameers gave in their submission, surrendering at the same time the important fortress of Hyderabad. One of them, however, Shere Mohammed, called the "Lion," collected an army of about 25,000 men to oppose Napier, but was beaten at Dubba, near Hyderabad, June 8, with immense slaughter. The war being ended, Napier, who after the battle of Meeanee had been appointed by Lord Ellenborough a K.C.B. and governor of the conquered province, set to work to improve its condition. The Hindoo and Sindian population, who had long been subjected to the military despotism of the Beloochees, were protected in their commercial and agricultural pursuits, native industry was encouraged, and slavery and the slave trade, sutteeism, infanticide, the military tenure of lands, and other barbarous customs were abolished. These reforms were conducted by Sir Charles in spite of frequent severe sicknesses and of the intrigues of interested parties, and during the course of his administration he visited every portion of Sinde. At the breaking out of the first Sikh war in 1845 he organized a force of 15,000 men to operate against the enemy, but was ordered elsewhere before the commencement of the campaign. In 1847 he returned to England, where he met with a flattering public reception. After a brief season of repose, he was, in March, 1849, at the suggestion of the duke of Wellington and in accordance with public feeling, despatched to India as commander-in-chief of the British forces, to supplant Lord Gough, whose doubtful victory at Chillianwallah in the second Sikh war had created much alarm in England. He found the war virtually ended before his arrival, and during the few months that he remained in the country he busied himself in military reforms and in repressing a mutinous spirit among the sepoys. "The most fiery of all the irascible tribe of Napiers," he came into collision with the governor-general, Lord Dalhousie, on some points of prerogative, and returned to England in 1850 dissatisfied and indignant. His health rapidly failed after this, his last public appearance being at the funeral of the duke of Wellington in Nov. 1852. At the time of his death he was a G.C.B., lieutenant-general in the army, and colonel of the 22d regiment. Among his numerous publications are some of permanent importance, including "Colonization in Southern Australia," "History of the Colonies—Ionian Islands," "Indian Misgovernment and Lord Dalhousie," "Lights and Shadows of Military Life" (a free imitation of Alfred de Vigny's *Grandeur et servitude militaire*), and "Remarks on the Military Law of Flogging." His career in India has been described by his brother Sir William F. P. Napier, who has also published his "Life and Opinions" (4 vols. 8vo., London, 1857). Monuments to him have been placed in Trafalgar square and St. Paul's church, London. He possessed the strong individuality which has characterized his family in the present century, was a good hater, warm in friendship, and persistent in enmity; and the consequence of such a character, developed in his busy career, was perpetual strife. He nevertheless accomplished much good in various departments of the public service, and during his last two years in India, according to the testimony of a recent writer, "the abuses which he corrected and the excesses which he restrained were perfectly numberless."

NAPIER, John, laird of Merchiston, the inventor of logarithms, born at Merchiston castle, near Edinburgh, in 1550, died there, April 4, 1617. In 1562 he entered St. Salvator's college in the university of St. Andrew's, and subsequently passed several years in travelling in France, Italy, and Spain. On his return to his native country he did not mingle in active life, and but little is known of him until he had arrived at the age of 40. In 1593 he published "A Plain Discovery of the Revelation of St. John" (4to., Edinburgh), and in the dedication of the work to the king gave his majesty some advice in regard to religious matters, and the propriety of reformation in his own "house, family, and court." A letter of his to Anthony Bacon, written in 1596, still exists, entitled "Secret Inventions necessary in those days for the Defence of this Island, and withstanding Strangers, Enemies to God's Truth and Religion." One of these inventions was for a burning mirror to set fire to ships by reflecting the rays of the sun; another was a device to accomplish the same purpose by reflecting "the beams of any material fire or flame;" another an instrument which should scatter such an amount of shot in all quarters as to destroy every thing near it. These and other schemes, if practicable, were never carried out, perhaps owing to the humane disposition of Napier himself, who declared on his death-bed that the "instruments of human destruction should never be increased by any conceit of his." Nothing is heard of him after this until in 1614 he brought out his system of logarithms, entitled *Mirifici Logarithmorum Canonis Descriptio* (4to., Edinburgh). Although published then, it is evident that Napier had begun the investigation of this subject before 1594, from a letter written by Kepler to Crugerus in 1624, in which he says: *Nihil autem Nepierianam rationem esse puto; etsi Scotus quidem literis ad Tychonem, anno* 1594, *scriptis jam spem fecit canonis illius mirifici.* No sooner was the work published than Henry Briggs, then professor of mathematics in Gresham college, London, began the application of the rules in his *Imitatio Nepierea*, and the system proposed by him is now commonly used. Napier's last work was his *Rabdologiæ seu Numerationis per Virgulas libri duo* (12mo., Edinburgh, 1617), in which he explained a contrivance to facilitate multiplication and division by means of small rods, which invention goes under the name of Napier's bones. After his death was published his *Mirifici Logarithmorum Canonis Constructio* (12mo., Edinburgh, 1619), in which he explained the principle of the construction of logarithms. Napier also enriched the science of trigonometry by the general theorem for the resolution of all the cases of right angled spherical triangles. There are two lives of Napier: one by the earl of Buchan, containing an analysis of his works by Dr. Walter Minto, published in 1787; and another by Mr. Mark Napier, published in 1834.

NAPIER, Henry Edward, an English naval officer and author, born March 5, 1789, died Oct. 13, 1853. He was the youngest brother of Sir Charles James Napier, the conqueror of Sinde, and at an early age entered the navy, where he attained the rank of captain. He is the author of "Florentine History from the earliest Authentic Records to the Accession of Ferdinand III., Grand Duke of Tuscany" (6 vols. 12mo., London, 1846–'7), an original work of great merit, and the most elaborate of the kind in the English language.

NAPIER, Macvey, a Scottish miscellaneous writer, born in 1776, died Feb. 11, 1847. He was educated at the universities of Glasgow and Edinburgh, and, being destined for the legal profession, was apprenticed to a member of the society of writers for the signet, was elected librarian of the society, and subsequently was selected for a lectureship on conveyancing, which was afterward made a professorship in the university of Edinburgh. In 1814 he edited the "Supplement to the Encyclopædia Britannica," and afterward superintended the 7th edition of that work. In 1829 he succeeded Jeffrey in the control of the "Edinburgh Review," which position he held 17 years. He published in 1818 "Remarks illustrative of the Scope and Influence of the Philosophical Writings of Lord Bacon," and was the author of some treatises on Scotch law.

NAPIER, Robert, a Scottish ship builder and engineer, born in Dumbarton, June 18, 1791. Although the son of a blacksmith, he received a good education in his native town, but was unwilling to go to college, preferring to become an apprentice in his father's trade. In 1811 he went to Edinburgh, where with considerable difficulty he obtained work, and with still more difficulty managed to live upon his wages of 10*s.* 6*d.* a week for 9 months, after which time he was employed in manufacturing works. Here, attempting to make a steam boiler, he omitted to caulk the joints, and the boiler leaked so much in consequence that the fire was put out. Mortified at his ill success, he returned to his father, and afterward went to Glasgow, where he was employed a short time with Mr. W. Lang, who manufactured jacks and machinery for calender works. Receiving from his father in May, 1815, £50, he spent £45 of it in purchasing a blacksmith's establishment at the Gallowgate of Glasgow, and set up business for himself. In 1823 he constructed his first marine engine, the forerunner of a large number of works of a similar character. In 1830 Mr. Napier, in conjunction with the city of Glasgow steam packet company, established a line of vessels which remained unsurpassed till superseded by railways; in 1834 furnished the Dundee and London shipping company with the Dundee and Perth steamships; in 1836 the East India company with the Berenice; and, in addition to several other works, in 1840 supplied the Hon. Samuel Cunard with his first 4 steamers. He has since built 9 other Atlantic steamers, and in 1856 the iron steamship Persia of 3,600 tons. Frequently 3,000 men are now employed by the firm of Robert Napier and son. In spite of the numerous and vast contracts they have undertaken, no important accident has happened to the machinery or vessels of their construction. Mr. Napier received the great gold medal of honor at the Paris exposition of 1855, and the decoration of the legion of honor.

NAPIER, Sir William Francis Patrick, a British soldier and author, born in Castletown, county of Kildare, Ireland, in 1785, died at Clapham Park, near London, Feb. 12, 1860. He entered the army at 15 years of age as ensign in the 43d regiment, was made a lieutenant in the succeeding year, and in 1804 a captain. After serving in the expedition to Copenhagen in 1807, he accompanied Sir John Moore to Spain in 1808, and during the next 6 years was an active participator in the war carried on in that country, his regiment forming part of the famous light division under Moore and Wellington. In 1811 he became major and in 1813 lieutenant-colonel of his regiment, which he commanded at Salamanca, Nivelle, and on the Nive. He was repeatedly wounded during the war, particularly at Almeida, and in following the retreat of Masséna from Portugal in 1810. Passing through the intermediate grades, he was appointed lieutenant-general in 1851, and general in 1859; and in 1853 he received the colonelcy of the 27th regiment. Between 1842 and 1848 he was lieutenant-governor of Guernsey, and in 1848 he was created knight commander of the bath. He is best known, however, as a writer, particularly of military history; and his chief work, "The History of the War in the Peninsula and in the South of France from 1807 to 1814" (6 vols. 8vo., London, 1828–'40), will prove an enduring monument of his industry and capacity. In the preparation of this work, which occupied him 16 years, he availed himself of communications from many distinguished officers, English and French, and was specially supplied with materials and documents by the duke of Wellington and Marshal Soult. Valuable assistance was also rendered him by his wife, a niece of Charles James Fox, who deciphered the secret correspondence of Joseph Bonaparte, which had been placed in his hands, and wrote out the whole work for the printers. The history, though technical in its details and severe in its style, has, in the words of a recent writer, "a dignity of treatment and a living verity in the descriptions which lead the mind irresistibly captive." The haughty and uncompromising spirit in which it was written nevertheless subjected the author to frequent charges of unfairness and inaccuracy, and for several years after its publication it was the subject of angry communications in the "Quarterly Review," the "United Service Magazine," and the "Times." The historian, however, refused to retract a single word, and in a number of controversial pieces, published as pamphlets or as review articles, vigorously defended his assertions. A selection from these in the appendix to the last English edition of his history, of which an American reprint was published in 1856 (5 vols. 12mo., New York), in the author's opinion, "will be found to sustain the accuracy of a work written honestly from good materials." In 1855 he published a volume entitled "English Battles and Sieges in the Peninsula," consisting principally of extracts from his large work, with some portions entirely rewritten. Sir William Napier also wrote the "Conquest of Scinde" (8vo., 1845), giving an account of the military exploits of his brother, Sir Charles James Napier, and published the "Life and Opinions" of the same (London, 1857), a work which involved him in a controversy with the East India company. His fondness for controversial writing was also indicated by various articles in the "Westminster" and other reviews, and in his unremitting efforts in behalf of his brother, and of his cousin Sir Charles Napier, the admiral.

NAPLES, Kingdom of. See Sicilies, The Two.

NAPLES (It. *Napoli;* anc. *Neapolis*), a city and seaport of S. Italy, in a province of the same name, on the N. coast of the bay of Naples, and on the river Sebeto, in the immediate vicinity of Mt. Vesuvius, and not far from the sites of Herculaneum and Pompeii, 118 m. S. E. from Rome, and connected by railway with Capua, Castellamare, and Cava; lat. 40° 52′ N., long. 14° 15′ E.; pop. of the city in 1856, 413,920, and of the province, 441,802. Naples is justly regarded as one of the most interesting cities of the world, on account of its classical associations, the magnitude and number of its palaces and public buildings, the picturesque animation of its principal streets, and chiefly on account of the beauty of its situation. The approach to Naples from the sea is famous for its loveliness. There are 5 principal land entrances, but it is an open city like London and New York, provided only at the leading avenues with barriers for the purpose of collecting the *gabella* or duties on provisions. It retains only a few fragments of its mediæval fortifications. Its 3 castles and modernized gates are surrounded by streets and houses, and are now within the city. It is built partly at the base, partly on the slopes of amphitheatre-like hills, divided into two natural crescents by a ridge, which forms the Collina di Capodimonte, Sant' Elmo, and Pizzofalcone, terminating on the S. in a small island occupied by the Castel dell' Ovo, and joined by a causeway to the mainland. The crescent E. of this ridge includes the bulk of the population, the most ancient part of the city, and the principal edifices and public institutions, extending from the heights of the Capodimonte hill and the Sant' Elmo castle to the river Sebeto, and intersected from N. to S. by a long thoroughfare, the lower portion of which forms the famous Strada di Toledo. On a depression between the Capodimonte and Sant' Elmo hills are the suburbs La Sanita and L'Infrascata, and on the slopes of the former the suburbs Dei Miracoli and Le Vergini. The crescent on the W. of Sant' Elmo is the modern city, known as the Chiaia or quay, connected with the E. portion by the streets occupying the depression between Sant' Elmo and Pizzofalcone, and by a broad avenue which bears successively the names of Gigante, Santa Lucia, Chiatamone, and Vittoria, and which runs along the shore at the foot of Pizzofalcone from the royal palace on the E. to the public gardens (Villa Reale) on the W. Another broad street, Riviera di Chiaia, passes along the whole length of the Chiaia; and at its W. extremity are the suburbs of Piedigrotta and Mergellina. The length of Naples, from the Sebeto bridge on the E. to the Mergellina suburb on the W., is 4 m.; the breadth, from the Capodimonte hill on the N. to the Castel dell' Ovo on the S., is 2½ m.; the circumference is nearly 11 m. The number of streets is about 1,300, including *strade* (main avenues), *vichi* (cross streets), *vicoletti* (smaller streets), *strettole* (lanes), *calate* (steep streets leading to the old city), *gradoni* (the steepest streets with steps), *salite* (streets running to the suburbs), *rampe* (streets with many branches), a few large thoroughfares called *vie*, and a few *rue* (sing. *rua*), French names given during the Anjou dynasty. The streets are generally straight, and paved with square blocks of lava; the large thoroughfares are lighted with gas, but only the principal of them have a sidewalk. The majority of the houses are divided into separate tenements, and vie with the streets in the variety of their occupants. They are known under the grandiloquent name of *palazzi*. The ground story consists of a series of arched cells, all of the same shape and size, occupied generally by tradesmen or for cafés or restaurants; and on the upper floors lodge numbers of families. No people of Europe, not even the Parisians, are fonder of outdoor life than the Neapolitans; and it is nothing unusual to see the children washed and dressed, and other domestic scenes of more or less delicate nature enacted in the open street. No other city in the world possesses such a mass of houses of the same description, so densely crowded with all sorts of people, and so grotesquely illustrative of all varieties of occupation and phases of life, as Naples. The Strada di Toledo, the main artery of Naples, was built in the 16th century by Pedro de Toledo, and separates the mediæval Naples from the modern city. It contains the principal shops, which, however, are much inferior in elegance to those of Paris and London. It runs N. and S. for about 1½ m., from the end of the Strada di Santa Lucia, near the royal palace, to the Museo Borbonico, but is hardly 60 feet in width, while it is bordered by houses 5 to 7 stories high. Few of the other streets exceed 30 feet in width, and many are not above 15 to 20 feet, while some are still narrower. The balconies of most of the houses and the booths and stalls give the streets an appearance of being still more contracted than they really are. The Santa Lucia was rebuilt and enlarged in 1836, and contains one of the markets for fish, especially for shell fish and oysters, which are in great demand.—Naples possesses hardly any squares. There are a few public places, or *larghi*, some of which are decorated with fountains and statuary. The principal of these are the Largo del Mercato, the Largo del Palazzo, and the Largo del Castello. The fashionable promenade is the Villa Reale, which may be said to form part of the Riviera di Chiaia. The lower classes are only admitted to it on the festival of Santa Maria di Piedigrotta. It is 5,000 feet long and 200 wide, and planted chiefly with evergreens, oaks, and acacias. It was first laid out in 1780, enlarged in 1807, and about ¼ of it was added in 1834. The early part of it is in the Italian style, and the additions are imitations of English landscape gardening, and contain two temples dedicated to Virgil and Tasso, winding paths, grottos, and a *loggia* toward the sea, from which the gardens are separated by a wall and parapet. The sea air proved so injurious to the statuary, that the famous Toro Farnese was removed to the Museo Borbonico, and replaced in 1825 by the large granite basin which forms the central fountain. Other remarkable statues have also since been taken away, and replaced by rather mediocre copies of some of the most celebrated works of antiquity. The Molo is to the masses of the people what the Villa Reale is to the *beau monde* of Naples. It is described as "an epitome of the town, which exhibits most of its humors. Here stands an enthusiastic friar, preaching to one row of lazzaroni; there Punch, the representative of the nation, holds forth to a crowd. Yonder another orator recounts the miracles performed by a consecrated wax work. Beyond him are quacks in hussar uniforms, exalting their drugs and brandishing their sabres as if not content with one mode of killing. The next *professore* is a dog of knowledge, great in his own little circle of admirers. Opposite to him stand two jocund old men, in the centre of an oval group, singing alternately to their crazy guitars. Further on is a motley audience, seated on planks, and listening to a tragi-comic *filosofo*, who reads, sings, and gesticulates old Gothic tales of Orlando and his paladins." More recently, however, these popular minstrels, or *cantatori*, have removed to the shore of the Marinella beyond the Molo Piccolo, where they continue to delight their motley audiences, who are mostly standing or seated on planks. The Marinella, a long open beach, and the Largo del Mercato, were once the principal places of resort of the lazzaroni, formerly a very troublesome and distinct class of people, but now subjected to the same regulations as the other citizens, and possessing among their ranks the most industrious boatmen and fishermen of the city, though they still preserve their fondness for lying on the beach and basking in the sun. Within the present century they have been notorious as the petted children of tyranny; but during the recent triumphs of Garibaldi they have exhibited the same patriotic enthusiasm which distinguished them in the times of the fisherman Masaniello, whose revolt was chiefly due to their influence. (See LAZZARONI.) Offshoots of the lazzaroni, and now among the most mischievous population of Naples, are the so called *Camorre* and *Guappi*, who were very troublesome during the recent entrance of the Garibaldian troops.—Prominent among the public buildings of Naples are the castles. The Castel Nuovo, with its massive towers and fosses, is situated near the port. It has been compared to the tower of London. The triumphal arch, erected in honor of the entry of Alfonso of Aragon into the city in the 15th century, is remarkable for its classical style, and stands between two of the old broad and massive Anjou towers. Beyond the celebrated bronze gates are the barracks and a magnificent hall, now used as an armory (*sala delle armi*, or *sala di San Luigi*), containing 60,000 stand of arms, and formerly used for a royal reception room, for state festivals, and for various other purposes of the court or of public entertainments. Adjoining the castle and the royal palace are the dockyard and arsenal. The Castel dell' Ovo, in the southernmost part of the city, is of oval form, as indicated by its name, and defended by bastions and outworks. It was much enlarged by Charles I. The Castel Sant' Elmo, the most commanding point in the city, was built in its present form by Pedro de Toledo, and is said to abound with mines and subterranean passages, which, together with the counterscarp and fosses cut in the solid tufa, and its formidable walls, make it of great strategetical importance, though it has lost some of its reputation for military strength. The Castel Capuano was once the residence of the Swabian and occasionally of the Anjou dynasty; it is now the seat of the tribunal of commerce, and of the principal courts of criminal and civil law, and contains a prison on the ground floor. The Castel del Carmine was fortified after the revolt of Masaniello, when it was the stronghold of the insurgents, and is now used as a military prison and barracks. The principal market place of Naples was the scene of Masaniello's insurrection. The chief aqueduct, which supplies the city fountains with water, is the Acqua di Carmignani. The Acqua della Bolla supplies the lower quarters of the city. The Acqua del Leone furnishes the purest water. There are two sulphur springs in the city of great celebrity.—The number of churches is over 300. The most important is the cathedral, which retains little of its original Gothic character excepting in the towers. It was commenced at the end of the 13th and completed at the beginning of the 14th century. The façade, destroyed by an earthquake in the middle of the 14th century, was rebuilt about 1407, and received its present modern form in 1788. Over the great entrance are the tombs of Charles I. of Anjou, Charles Martel, and his wife Clementia of Hapsburg. It also contains the tombs of King Andrew of Hungary, of Pope Innocent IV., and of other noted personages. Among the celebrated chapels of the cathedral is the Capella de' Minutoli, the scene of one of Boccaccio's stories, and containing the tomb of the founder, Archbishop Minutoli, which, like many other monuments in the church, is due to the genius of Bamboccio. Opposite to the entrance of the basilica of Santa Restituta, once the place of worship for the Greek ritual and now forming part of the cathedral, is the Cappella del Tesoro, or the chapel of San Gennaro (St. Januarius), with the two celebrated vials said to contain the blood of that saint, the liquefaction of which gives occasion for the greatest religious festivals of Naples. (See JANUARIUS, SAINT.) The "Tomb of San Gennaro," with the sick waiting to be cured, and several other paintings and frescoes in the chapel, are by Domenichino. The tomb of San Gennaro is under the high altar in the richly ornamented subterranean chapel called the "confessional of San Gennaro," near the kneeling statue of Cardinal Carafa, which is said to have been executed by Michel Angelo. The church of San Aniello a Capo Napoli, or San Agnello Maggiore, in the Largo San Agnello, has a painting of San Carlo by Caracciolo, said to be one of the most masterly imitations of Annibale Carracci. Beneath the richly decorated church of Santi Apostoli, said to have been founded by Constantine on the ruins of a temple of Mercury, and rebuilt with greater magnificence, is a cemetery containing the tomb of the poet Marini. Among the other churches are Santa Chiara, with a Latin inscription over the Gothic tomb of King Robert the Wise, attributed to Petrarch, designed like many other monuments by Masuccio II.; San Domenico Maggiore, rich in mediæval works of art; San Filippo Neri, one of the finest churches in Naples; San Lorenzo, associated with one of the stories of Boccaccio, with Petrarch, who resided for some time in the cloister attached to it, and with Alfonso I., who in the chapter house of this church proclaimed his natural son Ferdinand heir to the throne by the title of duke of Calabria. San Martino is celebrated for the magnificence of the view from it, and of its architecture and works of art. Santa Maria del Parto, in the Mergellina suburb, called by the common people *il diavolo di Mergellina*, derives its name from Sannazzaro's *De Partu Virginis*, and contains that poet's tomb.—Mendicity is prohibited by law in Naples, but there are no poor rates, and beggars abound. About 60 institutions are devoted to charitable purposes. The most celebrated of them is the *albergo de poveri* or *reclusorio*, an immense institution, which with its dependencies accommodates upward of 5,000 persons. It is 1,050 feet long, but was intended by its founder Charles III. to cover a still larger ground, to serve as an asylum and an educational establishment for all the poor of the kingdom. To some extent it is made to answer this purpose; boys and girls are educated there and brought up to trades, and the boys generally enlist in the army. The greatest among the other hospitals is the *santa casa degl' incurabili*, or hospital for incurable diseases, but open to the sick of all descriptions; it is in high repute as a medical school, and accommodates about 2,000 patients. The hospital Della Annunziata is chiefly intended for the reception of foundlings. There are annually about 2,000 foundlings out of 15,000 births, and they are better cared for in Naples than in other parts of Italy.—Prominent among the educational institutions is the university, which contains 54 different professorships and about 1,500 students. The Chinese college, founded by Father Ripa, a missionary in China, is intended for the training of young Chinese, who, after having completed their education, are employed as missionaries in their native country. The college of music, in which Bellini was educated, enjoys a high reputation, and has for its present director Mercadante. It gives free instruction to 100 pupils, and admits others at a small remuneration. The national school of medicine and surgery is attended by upward of 100 students, contains a pathological museum, and communicates by a subterranean passage with the practical medical school at the hospital for incurables, in which place the academy of medical and surgical science holds its sittings. The *societa reale Borbonica* comprises academies of science, of archæology, and of the fine arts, and the two former publish their transactions. There is also an academy for naturalists (*accademia degli aspiranti naturalisti*); and the *accademia Pontaniana* is devoted to letters as well as to science. The observatory of Naples, situated on the Capodimonte hill, about 500 feet above the level of the sea, is an elegant building, completed in 1820, after the plans of Piazzi, under whose direction it has achieved great celebrity, and who has been succeeded by Gasparis. The botanic garden, completed in 1818, is under the direction of Professor Tenore, and chiefly remarkable for its collection of trees. Naples possesses 4 great public libraries, the Borbonica, the Brancacciana, the university library, and the Girolomini; beside which there are a great number of private libraries.—The greatest glory of Naples, however, is the Museo Borbonico, situated in a building originally intended for the cavalry barrack, and afterward remodelled from the designs of Fontana for the use of the university, and for some time the seat of the academy of science. It is still called *palazzo degli studii publici*, or simply *studii*. The name *museo reale Borbonico* was given to it by Ferdinand I., who, after its enlargement in 1790 for the purpose of receiving the royal collection of art, caused all the antiquities and pictures in the royal palaces of Portici and Capodimonte to be brought into it in 1820. The museum consists of 16 collections, comprising on the ground floor ancient frescoes, mosaics, and mural inscriptions, Egyptian antiquities, ancient sculptures, inscriptions, the Toro Farnese, and bronzes; on the staircase, ancient glasses, pottery, cinque-cento objects, and reserved cabinet; upstairs, the papyri, gems, medals and coins, small bronzes, vases, paintings, and the library. The collection of ancient frescoes contains more than 1,600 specimens found at Herculaneum and Pompeii, and is constantly increased by the result of ceaseless excavations. The collection of ancient sculpture is one of the most interesting of the museum, particularly the portico with the statues of the Roman emperors, that of Agrippina being considered by Winckelmann superior to those of the Villa Albani or the capitol, and the colossal bust of Julius Cæsar in Carrara marble being regarded by Visconti as the finest representation known of him. In the hall of Flora is the Flora Farnese, one of the masterpieces of ancient sculpture. In the hall of the Muses is the famous vase of Greek marble, which was found in the bay of Gaëta among the ruins of ancient Formiæ, and which is covered with bass-reliefs representing the birth of Bacchus, by the Athenian sculptor Salpion. One of the most unique works in the hall of Adonis is the "Hermaphrodite Faun" in Parian marble, found in the ruins of Pompeii. The greatest work in the hall of Jupiter is the Torso Farnese, or the Torso of Bacchus, from the Farnese collection, hardly inferior in beauty to the Torso Belvedere, and attributed by some authorities to Phidias. A fragment of Psyche, found in the amphitheatre of Capua, and supposed to be the work of Praxiteles, is regarded as the most exquisite representation of that subject extant; and in the same hall is a bass-relief representing Bacchus intoxicated, which is regarded by Winckelmann as the finest bass-relief of Grecian art. The hall of Atlas contains statues and busts of Homer, Socrates, Solon (one of the most admired in the collection), Demosthenes, Herodotus, Cicero, and other illustrious men. The hall of Tiberius contains the bust of Seneca, known as the Farnese Seneca, and a Vestal, known under the name of the Zingarella; and among the most remarkable works of art there is the quadrangular pedestal of Greek marble erected in honor of Tiberius by 14 cities of Asia Minor, which he had rebuilt after their destruction by an earthquake. The cabinet of the Venus Callipyge has for its principal ornament the statue of that goddess, found in the golden house of Nero, and which passed for a long time as one of the Venuses executed by Praxiteles. The collection of inscriptions, or the *museo epigrafico*, possesses about 1,200 inscribed monuments from Cumæ, Herculaneum, Pompeii, Stabiæ, Baiæ, and other ancient localities near Naples. This part of the museum also contains the group of the Toro Farnese, regarded by Pliny as one of the most remarkable works of antiquity. The Farnese Hercules, executed by the Greek sculptor Glycon, and highly popular among the ancients as the Hercules of Glycon, belongs to the other noticeable works of this collection. It was found in 1540 among the ruins of the baths of Caracalla, by Pope Paul III., who employed Michel

Angelo to supply the missing legs, which were executed by Guglielmo della Porta, a sculptor of Milan, from Angelo's model in terra cotta. The original legs have since been found and restored to the statue. The gallery of bronzes is the most extensive collection of the kind. Among its principal treasures of art is the finest bronze statue in the world, representing Mercury in repose, found in Herculaneum; and the most graceful of the bronzes found in Pompeii represents the dancing faun. Among the finest busts there are those of Berenice, of Scipio Africanus, and of Seneca. Almost all the works in this collection are from Herculaneum and Pompeii. The collection of ancient glass includes nearly every article into which glass can be worked, and contains about 4,000 specimens, including the window glass found in the villa of Diomed at Pompeii. The most beautiful of the vases there was found in 1837, full of human ashes, in the tomb attached to the house of the mosaic columns at Pompeii, and has been often compared to the Portland vase. The collection of terra cottas contains more than 5,000 articles of ancient Roman pottery, including the Volscian bass-reliefs found at Velletri, and 3 *tasse* of great beauty, one of them adorned with the bust of a matron, and bearing the inscription: *Bibe amice de meo.* The cinque-cento collection contains pictures brought from India and miscellaneous objects from the South sea islands, and a large number of sacramental vessels. Among its most distinguished articles are a sacramental pix in bronze, said to have been designed by Michel Angelo, a bronze bust of Dante, and a superb silver chest (the *cassetta Farnese*), with rock crystal and bass-reliefs illustrative of mythological subjects and of events in the life of Alexander the Great. The "reserved cabinet" contains works of art which are not considered appropriate for public inspection, and can be seen only by special permission from the government. Alexandre Dumas, immediately after his appointment by Garibaldi in 1860 as director of the museum, and during his brief tenure of this office, is said to have caused this room to be thrown open to the public. The "room of the papyri" includes the contents of one of the most remarkable discoveries at Herculaneum—a library with more than 1,700 rolls of writings, some of which were on first sight destroyed by the workmen employed in the excavation as mere pieces of charcoal. Paderni was the first to discover that the supposed sticks of charcoal were nothing less than MSS. disfigured by the effects of the fire. After various experiments, a machine was invented by Father Piaggi for unrolling the papyri, which has not yet been supplanted by a more effective method of operation, although Sir Humphry Davy endeavored to find one by the resources of chemistry. The bulk of the library seems to have been composed of dissertations on the Epicurean philosophy. Nearly one third of the papyri have been unrolled and deciphered. The cabinet of gems contains the collection of cameos and intaglios, consisting of 1,600 specimens, the famous *tassa Farnese*, nearly a foot in diameter, and numerous curious and precious articles (*oggetti preziosi*) of gold and silver, almost all found in Herculaneum and Pompeii. In the collection of medals are about 40,000 coins of Magna Græcia, and Sicilian and mediæval coins. The museum of small bronzes contains, among a great variety of articles suggestive of the domestic life of the inhabitants of Pompeii and Herculaneum, a very beautiful candelabrum 8 feet high, a room filled with sacrificial vessels, surgical and musical instruments, and the renowned Heracleian tables, found in the 18th century near the site of ancient Heracleia. The mosaic pavements in this section of the museum are of peculiar interest. The collection of sepulchral vases comprises upward of 3,000 specimens, the most beautiful of which are the three found at Nola, consisting of the vase of Cassandra, the Bacchanalian vase, and the "Burning of Troy," with the principal incidents of the Iliad, which is the finest of them all. The gallery of paintings comprises about 900 works of Italian and foreign artists, and the private collection of the prince of Salerno. Among the masterpieces (gallery of *capi d'opera*) are Bassano's "Raising of Lazarus;" Annibale Carracci's *Pieta;* Claude Lorraine's "Egerian Landscape;" Correggio's "Marriage of St. Catharine;" Domenichino's "Guardian Angel;" Albert Dürer's "Nativity;" Raphael's "Holy Family" (*Madonna col divino amore*); Giulio Romano's "Holy Family" (*Madonna della gatta*); Titian's celebrated "Magdalen in Prayer," and the same artist's masterly portrait of Philip II; a copy of the "Last Judgment," by Marcello Venusti, executed in the Sistine chapel under the direction of Michel Angelo himself, who presented it to Cardinal Farnese; and pictures by Andrea del Sarto, Zingaro, and other eminent artists; copies of Correggio by Annibale Carracci; and a most remarkable and touching picture called the *Madonna del coniglio* from the rabbit introduced into it, or the *Zingarella* (gypsy) from the turban worn by the Virgin during the flight out of Egypt. The gallery contains, among a great number of inferior works, several fine productions of Byzantine, Neapolitan and various other Italian schools, including Raphael's two cartoons of Moses on Mt. Sinai and the holy family; Titian's nude figure of Danaë; Salvator Rosa's "Christ disputing in the Temple;" Roderigo's (Il Siciliano) masterpiece representing "St. John the Baptist and St. Francis contemplating the Trinity;" Andrea di Salerno's crowning work of the "Adoration of the Magi;" Bernardo Gatti's "Crucifixion;" Matteo Giovanni da Siena's "Massacre of the Innocents;" Rembrandt's portrait of himself; Vandyke's portraits of the princess of Egmont, of a magistrate, and of an unknown man; Van

Eyck's "Village Festival;" Wouverman's "Bivouac on the Banks of a River;" and other works by Dutch and Flemish masters. In the prince of Salerno's private collection are a number of works by celebrated artists. The royal palace contains Raphael's "Madonna and Child," and other valuable works of art. It was partly destroyed by fire in 1837, and has since been enlarged and repaired by the late King Ferdinand. The altar of its chapel is remarkable for precious marbles and for Fansaga's statue of the conception. The suburban villa of the ex-king of Naples (*palazzo reale di Capodimonte*) contains a gallery of modern pictures, chiefly by Neapolitan artists.—The private palaces of Naples are far inferior in architectural beauty to those of Florence and other cities of upper Italy, but almost all of them contain museums of works of art. The most beautiful private palace is the Palazzo Gravina, in the Strada di Monte Oliveto, built at the end of the 15th century by Ferdinando Orsini, duke of Gravina, after the design of Gabriele d'Agnelo, and now the property of the government, and used as the general post office. The *palazzo de' ministeri*, called also San Giacomo, from its being on the site of the ancient monastery of that name, between the Strada di Toledo and the Largo del Castello, was begun in 1819 and completed in 1825 for the purpose of conducting all the public business in one and the same building. It may be compared to the offices of Downing street in London brought under one roof, and contains 6 courts, 846 apartments, and 40 corridors, covering not less than 5 acres of ground. The Palazzo Pianura, near the church of San Paolo, was the residence of the poet Marini. The Palazzo Santangelo is remarkable for its fine statuary and collection of coins and medals, illustrative of the numismatic history of the Two Sicilies. The Palazzo Monticelli, a fine specimen of the domestic architecture of the 15th century, was long the residence of the mineralogist Monticelli, whose collection of Vesuvian productions was purchased by the university after his death. The Palazzo Cellammare, now the property of the duke of that name, is surrounded with extensive pleasure grounds. The Palazzo Carafa is now partly converted into barracks and partly occupied by the royal topographical office. The Palazzo Calabritto is now the residence of the British consul and the place of worship for the members of the church of England. Among the other private palaces, the Palazzo Caramanico is regarded by some authorities as the masterpiece of the architect Fuga; and the Palazzo Bisignano, in the Strada Constantinopoli, still bears the traces of its original magnificence. Naples abounds with fine villas, as the Villa Regina Isabella on the Capodimonte hill, and the Villa Angri on the Posilippo hill, with superb views on the bay; the villas Belvedere, Floridiana, and Ricciardi, or Villa de' Camaldoli, on the Vomero; and the Villa Ruffo, near the castle of Sant' Elmo, noted as having been the residence of Cardinal Ruffo during Nelson's career in Naples. In the immediate environs of Naples are the Grotta di Pozzuoli or di Posilippo, consisting of a tunnel about 2,250 feet long and 21½ feet wide, excavated in the older volcanic tufa, and containing near the top of the entrance the celebrated Roman columbarium known as the tomb of Virgil. The environs abound with many other remarkable sights, interesting to the classical scholar, archæologist, and naturalist, as well as to the admirers of the beautiful and picturesque in nature, the vicinity of Vesuvius and other volcanic localities presenting scenes of matchless grandeur.—The principal places of amusement are the theatres. The San Carlo, adjoining the royal palace, is the largest Italian opera house in the world. It was designed, by order of Charles III., by Medrano, a Sicilian artist, built in the short space of 8 months by Angelo Carasale, a Neapolitan architect, and opened in 1737. It was burned down in 1816, but rebuilt after 7 months, without altering the original form. It has 6 tiers of boxes of 32 each, and the pit accommodates more than 1,000 persons. It is opened on alternate nights with the *teatro del fondo* in the Strada Molo, which is under the same management as the San Carlo, and likewise exclusively devoted to operas and ballets. The oldest theatre in Naples is the *teatro de' Fiorentini*, now the popular stage of the Italian drama. The opera buffa is represented chiefly in the *teatro nuovo*. The *teatro della Fenice* is devoted both to opera buffa and melodrama. The *teatro Partenope* is a popular theatre, in which farce and comedy are performed twice a day in the Neapolitan dialect. The most characteristic and amusing theatre of them all is that of San Carlino in the Largo del Castello. This is the home of Pulcinello, or of the Neapolitan clown. The performances take place in the morning and evening in the Neapolitan dialect, and are attended by all classes of the population.—The Neapolitans, like the ancient Grecians, combine their devotion with pleasure; and the great popular religious festivals, as the *festa di Piedigrotta* on Sept. 8, and the *festa di Monte Vergine* on Whit-Sunday, both in honor of the Holy Virgin, are scenes of great rejoicing as well as compunction. At the latter place, which is near Avelleno at the shrine of the Madonna di Monte Vergine, the inhabitants of Naples meet pilgrims from every part of the country. On the road they beguile the time in dancing the Tarantella and singing national songs; and a great number, who cannot go so far as Monte Vergine, make the pilgrimage to the Madonna dell' Arco, which is 7 m. from the city, at the foot of Mount Somma. Beside the two festivals in honor of San Gennaro, the *festa di S. Antonio Abbate* is celebrated on Jan 17, and continued on every succeeding Sunday until Lent, for the blessing of the animals; and Easter, Ascension day, and the festival of

Corpus Christi also give rise to solemn processions and imposing ceremonies. From Christmas to Feb. 2, the day of the purification, the leading churches and some private families exhibit *presepi* or representations of the nativity. The mountain minstrels from the Abruzzi (*zampognantori*), with their bagpipes, brown cloaks, pointed hats, and sandals, come to Naples at the Christmas season to perform hymns and carols beneath the figures of the Virgin, and enhance the picturesque appearance which the city presents at that season. No other people in Europe are so fond of pleasure, and at the same time so devoted to their religious usages, as the Neapolitans. An English writer says of the general characteristics of the people and of Neapolitan life: "Even the lowest class enjoy every blessing that can make the animal happy—a delicious climate, high spirits, a facility of satisfying every appetite, and a conscience which gives no pain. Here tatters are not misery, for the climate requires little covering; filth is not misery to them that are born to it, and a few fingerings of macaroni can wind up the rattling machine for the day. . . . . . The people seem in general peaceful and contented, unconscious of want at least; they consume little, and that little is cheap. For 3 grains a day (3 cents), a man has his fill of macaroni; and for 3 grains more he may have his *frittata* (very good fish, or vegetables fried in oil) at any of the innumerable stands of itinerant cooks about the streets, which is not the only luxury of the gastronomic kind within his reach. A glass of ice water costs ½ grain, and if properly seasoned with grape juice and sugar, 2 grains. The price of these things is kept down by government, ice or hardened snow being abundantly supplied at the public expense from natural ice houses in certain cavernous rocks above Stabiæ and Sorrento, and even on Vesuvius. The ice in baskets is made to slide down the mountain, along light ropes into boats, which sail across the bay during the night and land their precarious cargoes before day. The lower people have clubs, where they assemble 20 or 30 together and contribute each one grain for wine for an evening. The nobility are numerous, and delight in splendor and display, although their means are very limited. Titles are here so common that you find at every corner *prencipi* without a virtue or a ducat. The fondness for the use of carriages is great. Women at all above the lower ranks do not walk; those who cannot afford a carriage are doomed by pride to perpetual imprisonment in their own houses, or only go to church with one or two poor devils hired for the occasion, who put on antiquated livery and carry a book or a cushion. The roofs of the houses, which are flat and adorned with flowers and shrubs in boxes, afford air and exercise to the women. Thus living in idle retirement, their mind is exclusively bent on the means of procuring a lover, and the tales of Boccaccio convey a likeness of their moral habits and manners."—The number of the city clergy in 1860 is 6,341; they are generally poor. The scholars and savants, artists, jurists, medical men, and the higher middle and professional classes of Naples generally, constitute a very intelligent and refined society; and its men of science and scholars are celebrated in Italy for their devotion to their respective branches of study. The number of strangers, chiefly from England, is great at all times, but particularly during the winter, notwithstanding the frequently dangerous effect of the climate upon foreign constitutions, especially upon consumptive patients.—Naples has 3 ports: the Porto Piccolo, the last remains of the ancient port of Palæpolis, and now only suited to small craft; the Porto Militare, a new harbor with a depth of water of 5 fathoms, bounded N. by the Porto Grande and S. by a mole, which runs in a S. E. direction into the sea for a distance of 1,200 feet; and the Porto Grande, the principal port, but with only 3 or 4 fathoms in its deepest part, having suffered from the silting of the sand and shingle. Between the Porto Grande and Porto Piccolo is the *imma colatelle*, with the offices of a branch of the board of health and the captain of the port. On the other side of the Porto Piccolo is the custom house. The Mandracchio district, on the S. E. of this latter port, is inhabited by the dregs of the Neapolitan population, resembling in their want of education the poor people who cluster round some of the back alleys and lanes of the streets near the Thames in London.—The principal imports of Naples are sugar, coffee, and other colonial produce; coal, salted fish, cotton, woollen, silk, and flax goods; iron, tinware, hardware, and a great number of miscellaneous articles. The chief exports are oil, grain, silk, almonds and dried fruits, hemp and flax, madder, wool, cream of tartar, and liquorice. The movements of shipping in 1855 were as follows:

Countries.	Entrances, vessels.	Clearances, tonnage.
Austria	17	2,510
Belgium	14	[illegible]
France: sailing vessels, 142, tonnage 24,045 steamers, 302, " 129,287	584	[illegible]
Great Britain: sailing vessels, 296, " 64,314 steamers, 159, " 58,456	454	[illegible]
Holland	44	8,459
Naples, kingdom of: sailing vessels, 4,854, tonnage 895,896 steamers, 318, " 75,179	5,172	978,504
Norway	9	1,778
Papal States: sailing vessels, 706, tonnage 39,156 steamers, 135, " 15,945	841	55,101
Sardinia: sailing vessels, 130, " 11,484 steamers, 278, " 109,487	408	190,571
Spain	18	[illegible]
Turkey	[illegible]	[illegible]
Tuscany	96	10,294
United States	19	8,971
Total	7,718	[illegible]

showing an increase of 1,602 vessels and 862,858 tons over 1854. In 1856, however, the shipping declined to 7,435, tonnage 1,113,524 (including 4,909, tonnage 410,196, in the coasting trade); and in 1857 it fell to 4,892, tonnage 685,075 (France 617, Great Britain 381, Sardinia 296, other countries 618, and coasting trade 2,982 vessels). The principal merchants of Naples are all more or less engaged in the banking business. At the head of the bankers stands the house of the Rothschilds, one of whose original branch establishments was founded at Naples under the direction of the late Baron Charles. The bank of the Two Sicilies is the government bank, guaranteed by the possession of landed property, and chiefly intended, like the bank of Hamburg, for receipts on deposit and not for the issue of notes on credit. There is also a discount office at Naples under the auspices of the government. Merchants are arranged by the chamber of commerce into 6 different classes, and credit to a certain amount at the custom house for the payment of duties is granted to them accordingly. Ship building is carried on to some extent. The anchovy and tunny fisheries are in active operation. Naples possesses iron and glass works and royal type founderies; and the principal other manufactures are macaroni, silks, embroideries, carpets, broadcloth, chemicals, soaps, perfumery, artificial flowers, corals, china, hats, carriages, gloves, &c.—For municipal purposes the city is divided into 12 districts, viz.: Mercato, Pendino, Porto, San Lorenzo, and Vicaria, the most populous, in the old or E. part of the city; San Ferdinando, in the central part; Chiaia and San Giuseppe, in the W. end; San Carlo all' Arena, in the N. part; Stella, Avvocata, and Monte Calvaria, in the upper part on the Capodimonte and Sant' Elmo hills. Every district has a commissary of police, and the number of military posts is 66, beside extensive barracks for infantry and cavalry. Naples is the seat of the general government, including a sanitary and educational department and one for the superintendence of the national archives, an immense collection of historical, municipal, judicial, and financial documents. Beside a prison for debtors, there are 5 prisons in Naples, the alleged abuses in which were stated by Mr. Gladstone in 1851 in his letter to the earl of Aberdeen, particularly referring to the sufferings of Baron Poerio and other political prisoners.—The principal antiquities of Naples are the catacombs, which are of greater extent than those of Rome. (See CATACOMBS, vol. iv. p. 545.) The environs abound with other celebrated relics of antiquity, but in the city proper there are not many of them, excepting the fragments of the temple of Castor and Pollux, of the Julian aqueduct, now called Ponti Rossi, and a few other remains. The greatest authority on Neapolitan inscriptions is Mommsen's *Corpus Inscriptionum Neapolitanarum* (Leipsic, 1851).—Several of the learned Neapolitan antiquaries claim for Naples a Phœnician origin, but it is generally considered to have been originally a Greek city and colony of Cumæ, although the account of its first foundation, under the name of Parthenope, is regarded by many authorities as a mythical tradition. According to several accounts the city was, after its increase through settlers from various parts of Greece, divided into an old town (Palæpolis) and a new town (Neapolis). But the identity of the connection between the two names is not yet clearly established. Niebuhr places the situation of Palæpolis near the site of the present town of Pozzuoli, and Livy refers to them as close to each other; but long before his time (330 B. C.) Palæpolis is mentioned as having been engaged in hostilities with Rome, and the name seems soon afterward to have disappeared from history, and to have become merged in Neapolis, which early became a faithful ally and dependency of Rome, and noted for the courage of its citizens from their successful resistance to the attack of Pyrrhus in 280 B. C., while the strength of its fortifications caused Hannibal to leave the place unmolested during the second Punic war. It retained to a far greater extent than other Italian cities its Greek culture and institutions, and many of the higher classes of Romans resorted to Neapolis for their education, on account of the beauty of the climate and the scenery, and of its hot springs. It recovered quickly from the calamities of the civil war of Marius and Sylla (82 B. C.). Under the empire it continued to be a favorite resort of the Roman nobility. Nero made his first public appearance as an actor on the stage of Naples, and the voluptuous character of the city caused it to be called by Ovid *in otia natam Parthenopen*. The celebrated villa of Vedius Pollio and other villas lined the coast on both sides of the city. The great tunnel under the still existing Monte Posilippo was then as now an object of admiration. The chief glory of the city was its association with Virgil, who is supposed to have resided there for a considerable period, and whose tomb is said to have been still extant there in the times of Statius and Silius Italicus; which latter poet also died in Neapolis, while the former resided there and speaks of the city as his birthplace. After the fall of the empire it escaped the ravages of the Vandals; and though conquered by Theodoric (A. D. 493), it seems to have retained its prosperity under this Gothic king. In 536 it was taken after a protracted siege by Belisarius, and besieged and retaken by Totila (542), but recovered by Narses in 553. In 572 it was constituted a separate duchy, forming a dependency of the exarchate of Ravenna. In the beginning of the 8th century it threw off its allegiance to the Byzantine emperors, and for about 400 years enjoyed an independent government under dukes of its own election, though often engaged in hostilities with the Lombard dukes of Benevento, to whom it was obliged to pay tribute. When the duchy of Benevento was divided into 3 principalities, the prince of Capua endeavored to gain the supremacy, and succeeded in seizing Naples (1027); but Duke Sergio, aided by a band of Normans, compelled him to evacuate it a few years afterward. The Normans were then encouraged to settle in the vicinity of the city, and eventually, after having conquered the whole of south Italy and Sicily, they reduced Naples after a protracted siege; and the city, which was the last to be subdued by the Normans, acknowledged Roger I. of Sicily as its sovereign (about 1137). On the extinction of the Norman dynasty Naples became subject to the house of Swabia from 1198 to 1268; and under the Anjou dynasty Naples superseded Palermo as the seat of the government. In 1442 the last king of the Anjou dynasty was conquered by Alfonso of Aragon. Under the Aragonese and Spanish kings it was ruled by viceroys till the peace of Utrecht, when it was annexed to the possessions of the house of Hapsburg. Carlo, son of Philip IV. of Spain, became master of the city and kingdom in 1735, and founded the dynasty which, except during the period of the French supremacy and the reign of Murat, occupied the throne until Sept. 7, 1860, when Naples was taken possession of by Garibaldi in behalf of the king of Sardinia. The king of Naples, Francis II., had previously fled from the city; and Victor Emanuel, king of Sardinia, made his entrance into it on Nov. 7. Naples has been often alarmed by earthquakes, and more recently in 1857 and 1858; but, although the surrounding country was laid waste, the city itself was not injured.

NAPOLEON BONAPARTE. See BONAPARTE.

NARBONNE, a city of France, in the department of Aude, near the coast of the Mediterranean, with which it is connected by a canal, 33 m. E. from Carcassonne, and 54 m. S. W. from Montpellier; pop. in 1856, 12,742. The most remarkable edifices are the cathedral of St. Just, a handsome Gothic structure founded in the 13th century, the church of St. Paul, an ancient building in the Romanesque style, and the archiepiscopal palace. Manufactures and trade are flourishing. The ancient Narbo Martius was founded by the Romans in 118 B. C. Many of the soldiers of Cæsar's tenth legion having been settled there, it was thence frequently called Decumanorum Colonia. It was taken by the Saracens in 719, and held by them for nearly half a century. In the middle ages it was one of the most flourishing towns in France. Hardly any remains of the Roman period now exist. Varro Atacinus, the Latin poet, and the Roman emperor Aurelius Carus, were natives of Narbonne.

NARBONNE-LARA, LOUIS, comte de, a French soldier and statesman, born in Colorno, in the duchy of Parma, in Aug. 1755, died in Torgau, Germany, Nov. 17, 1813. His father was gentleman of the bedchamber and his mother lady of honor to the duchess of Parma, daughter of Louis XV. On the death of the duchess in 1760, his mother became attached in the same capacity to Mme. Adelaide at the French court, and the son was educated with the royal princes. He entered the military service, became a colonel in 1785, and was employed for some time in the ministry of foreign affairs under Vergennes. In 1789 he favored the new opinions, and became very popular in the department of Doubs, where in 1790 he was placed in command of the national guard; but he was always loyal to the royal family. He accompanied the king's aunts when they left Versailles in 1791, and, after seeing them safe out of France, returned to Paris. Through the influence of Mme. de Staël, with whom he had an intimate friendship, he was appointed minister of war, Dec. 6, 1791, but was dismissed in March, 1792, and joined the army. After the attack on the Tuileries, Aug. 10, 1792, when he was present in the capital and displayed great courage, he fled to London, where he wrote a memoir to the convention in behalf of Louis XVI. He returned to France in 1800, was restored to his rank as general of division in 1809, and was governor at Raab and Trieste, and minister plenipotentiary at the court of Bavaria. He accompanied Napoleon as special aide-de-camp to Russia, was ambassador to Vienna in 1813, minister to the congress at Prague, and finally military commander at Torgau.

NARCISSUS (Gr. *ναρκη*, torpor), the name of a genus of beautiful flowering plants of the natural order *amaryllidaceæ* (R. Brown), used at funerals among the ancients for the lethargic effects of their fumes. The narcissi have truncated bulbs, linear leaves, which are either flat or channelled, a naked, often compressed or angular scape surmounted by a one-leaved bract or spathe, which bursts open on one side and shows one, two, or more white or yellow flowers, each supported by a pedicel. The flower is composed of a perigone consisting of 6 petaloid, lanceolate, or oval segments united at base, and 6 stamens of unequal length, those which are opposite the sepals being the longest, and all surrounded by a sort of cup (*corona*), usually of a different color and varying greatly in length and proportion in different species. According to the Linnæan idea, this cup is the nectary; but, as has been shown by Robert Brown, who has studied the morphological characters of the order, it is no more than a modification of another series of stamens by the expansion of the filaments, which cohere at their edges. The ovary is usually compressed, and is surmounted by a simple style.—The species of narcissus are numerous, and are much esteemed for the garden, giving it a cheerful appearance in early spring. The daffodil (*N. pseudonarcissus*, Linn.), which grows spontaneously on the high pastures of the range of the Jura mountains in Europe in immense quantities, also occurs in Great Britain, and is considered one of the most beautiful native plants of that kingdom. There is a variety with double flowers in our gardens, and sometimes employed for edging to flower borders, or else planted in clumps in some warm and sunny bank, where its large, showy blossoms exhibit themselves in April. The true daffodil of the poets is *N. poeticus*, found wild in Europe and in Great Britain, abundant especially in many places at the foot of the Jura range, and seen in most old gardens. The edge of the cup is beautifully bordered with a narrow crimson line. Its perfume is pleasant, especially in the double-flowered variety, where the cup and stamens are obliterated in the multiplication of the other organs. The two-flowered narcissus (*N. biflorus*, Curtis) resembles this, but the cup has no tinted line, and the two flowers from the same spathe are a normal characteristic. There is a curious species known as "butter and eggs" (*N. incomparabilis*), having both yellow and white petals, which in the double-flowered variety naturally suggest the trivial name. This is sometimes called the orange phœnix in the Dutch flower catalogues. A still more remarkable species is the hoop petticoat (*N. bulbocodium*), where the cup is very much expanded and stands widely inflated beyond the petals. The jonquil narcissus (*N. jonquilla*, Linn.) is a pretty species with yellow blossoms, sweet-scented, and with foliage looking like that of the rush (*juncus*), whence the specific name. The polyanthus narcissuses of the flower catalogues are beautiful varieties of the *N. tazetta* (It. *tazza*, cup, the corona being regularly cup-shaped). The style of this species is large and conspicuous, the scape is strong and tall, and from the spathe 6 to 10 flowers issue. Those known as the *grand monarque* and the *grand primo* have white blossoms with citron-colored cups; the *soleil d'or* has yellow and orange flowers, the *staaten general* yellow; and the double Roman with double cups is in much esteem.—The culture of the narcissi is simple, requiring a good and deep soil, and the removal of the offsets from the bulbs by occasionally taking them up and transplanting afresh in the autumn. Some of the finer kinds are rather tender for outdoor cultivation, especially in the northern United States; but they succeed well by forcing, and are handsome plants for the greenhouse or parlor. The odor from the flowers is apt to be offensive in close apartments.—The bulbs of the narcissus are said to abound in farina, and to contain an emetic principle to such an extent that those of the *N. poeticus*, *jonquilla*, and some others, were called *bulbi vomitarii* by the old herbalists. Similar properties exist in *N. odorus*, *pseudonarcissus*, and *tazetta*; and in Europe they are administered in doses of 5 to 10 grains to produce nausea, and of 30 grains as an emetic. The extract is the best form in which the active principle can be exhibited medicinally; 2 or 3 drachms will destroy life in the course of a few hours. By some it has been employed in the treatment of whooping cough, but according to Laennec, though sometimes effectual, it is not more so than belladonna. The flowers are likewise employed in preparations on account of their sedative qualities, and those of the pseudonarcissus are not only emetic but a dangerous poison, occasionally producing serious consequences in infants who are allowed to swallow them.—The different forms of the narcissus have been carefully studied and arranged by Robert Brown, and again by the Rev. William Herbert ("Appendix to the Botanical Magazine," London, 1821). The genus is there divided into 6 other genera, after the mode adopted by Haworth (*Narcissiarum Monographia*, London, 1831), which, though convenient for their determination, has not met with much favor from botanists in general.

NARCISSUS. I. A mythical youth, son of the river god Cephissus and the nymph Liriope, who was remarkable for his beauty, but wholly inaccessible to love. The nymph Echo died of grief because he would not reciprocate her affection. One of his rejected admirers begged Nemesis to punish him, and the goddess caused him to fall in love with the reflection of his own figure in a spring. Under the influence of this passion he pined away, and after death was changed into the flower which bears his name. II. A freedman and secretary of the Roman emperor Claudius, over whom he acquired unbounded influence. For some time he used his power in subservience to the wishes of the empress Messalina; but when he found that she meditated his destruction, he determined to anticipate her, and revealing to Claudius her marriage with Caius Silius, convinced him that his own safety required her immediate sacrifice. The emperor consented to her imprisonment, but as he manifested reluctance to have her put to death, Narcissus sent a tribune to despatch her. Agrippina, whose intrigues in favor of her son Nero Narcissus had thwarted, had him removed to Campania, where he was murdered by her orders, A. D. 54. He is said to have amassed a fortune of 400,000,000 sesterces, equivalent to $13,500,000. III. A Roman athlete, with whom the emperor Commodus was in the habit of contending in the arena, and who was afterward employed by Marcia to strangle his patron. For this crime Severus, on his accession, had him given to the lions.

NARCOTICS (Gr. *ναρκη*, torpor), substances which when taken into the system affect the cerebral functions, stimulating and then producing drowsiness, which may be succeeded by stupor. Opium and morphia are familiar examples. Sedatives differ from narcotics in having no exciting influence.

NARD. See SPIKENARD.

NARRAGANSET BAY, on the S. E. coast of Rhode Island, extends from Point Judith on the W. to Seconnet on the E., and N. to Bullock's Point, 6 m. below Providence, being 28 m. long by from 3 to 12 m. wide. It receives the Pawtuxet, Providence, Pawtucket, and Taunton rivers, and contains a number of islands, the principal of which are Rhode island, Canonicut, and Providence. It is easily accessible, and affords excellent harbors and roadsteads. Newport, Bristol, Warren, and other towns are on its borders. It is well supplied with lighthouses, and strongly fortified.

NARRAGANSETS, a tribe of Indians who formerly occupied the territory now comprised in the state of Rhode Island and the eastern part of Long island. Shortly after the arrival of the pilgrims they manifested symptoms of hostility; and as an expression of sentiment Canonicus, their chief, sent to Plymouth a bundle of arrows wrapped in the skin of a rattlesnake; to which Bradford, the governor, replied with the same skin filled with powder and shot. This significant retort secured, if not the good will, at least the peaceableness of the sagacious chief. In the Pequot war they aided the colonists, but not unanimously. In the winter of 1675, during King Philip's war, that chief having taken refuge with the tribe, the colonists, apprehending that they would join his cause, made a secret attack upon their principal fort, killing about 1,000 warriors, destroying all their provisions, and exposing those who escaped to cold and famine, of which very many died. The Narragansets from this time waged incessant war with the whites, and were soon exterminated.

NARROWS, The. See New York.

NARSES, a general and statesman of the Byzantine empire, born about A. D. 473, died in Rome in 568. His original condition was that of a slave and a eunuch in the household of Justinian. He rendered important services to his master during the Nika sedition in 532, was appointed imperial treasurer, and was subsequently sent on several embassies. In 538 he was placed in command of the reënforcements which were sent to Belisarius, then waging war against the Goths in Italy; but his jealousy of Belisarius, whom he is supposed to have had instructions from Justinian to thwart, paralyzed the Roman arms and led to the capture of Milan by the Goths. Narses was consequently recalled in 539, and for the next 12 years his name is hardly mentioned in the Byzantine annals; but in the imperial councils he continued to exercise a predominant influence. He obtained command of a second expedition against the Goths in Italy in 552, and near Rome gained a complete victory over King Totila, who perished with 6,000 of his soldiers. This triumph led to the surrender of Rome and several of the strongest fortresses in central Italy. A vast barbarian army under Teias, the successor of Totila, was soon afterward defeated on the banks of the Sarno, near Naples, after a battle of two days, in which Teias was slain. The Franks and Alemanni, to the number of 75,000, now descended from the Alps, and spread themselves over the whole peninsula, devastating and destroying wherever they came. Narses waited until they had become demoralized and weakened by rapine, and then attacked them at Casilinum in Campania, on their return northward, with such vigor that out of 80,000 men only 5,000 are said to have escaped from the battle. This victory utterly ruined the barbarian power in Italy, which once more became a province of the empire. Narses was rewarded by the appointment of governor of the conquered territory, and, fixing his residence at Ravenna, ruled it with the title of exarch for 15 years. Soon after the accession of Justin, being dismissed from office, he invited the Lombards to invade Italy, probably anticipating that he would be restored to power in order to repel them. In this he was disappointed, and he is said to have died of grief at the ruin which his treachery brought upon the country.

NARUSZEWICZ, Adam Stanislaw, a Polish historian and poet, born in Lithuania in 1733, died at Janowiec, Galicia, in 1796. He was educated in a Jesuits' school, entered that order in 1748, travelled through Germany, France, and Italy, was appointed professor at Warsaw, and after the dissolution of the order became bishop of Smolensk, and subsequently of Luck. By the advice of his patron, King Stanislas Augustus Poniatowski, he devoted himself especially to the critical study of Polish history, and his "History of Poland," of which vols. ii. to vii. appeared during his lifetime (Warsaw, 1780 *et seq.*), and fragments of the first volume after his death, gained him the surname of the Polish Tacitus. Among his other works are a life of Gen. Chodkiewicz, a history of the Tartars, a translation of Tacitus, idyls, satires, and other poems, all of which belong to the best productions of the Polish literature of that flourishing period.

NARVA, a town and port of European Russia, in the government of St. Petersburg, on the left bank of the Narova, 80 m. S. W. from St. Petersburg; pop. about 5,000. It is surrounded with a rampart, and has 11 Greek and Lutheran churches, manufactories of nails, and productive fisheries. It was founded in the 13th century, and was formerly a member of the Hanseatic league, and celebrated for its commerce previous to the foundation of St. Petersburg. The mass of the people are of German descent. Near this town Charles XII., on Nov. 30, 1700, with an army of 8,000 Swedes, defeated more than 60,000 Russians under Peter the Great.

NARVAEZ, Ramon Maria, duke of Valencia, a Spanish soldier and statesman, born in Loja, Andalusia, Aug. 4, 1795. He was early engaged in military operations, and was wounded during the capture of Castelfollit in 1822. In 1823 he was compelled to withdraw before the French army of intervention, and lived in retirement until about 1834, when he was again wounded in the battle of Mendigorria. In 1836 he acted under the orders of Espartero, and the reputation which he then gained by defeating the formidable Carlist general Gomez (Nov. 25, 1836) led to his advancement. In 1838 he succeeded, by his rigorous measures against the brigands who infested the province of La Mancha, in restoring tranquillity to that part of the country. He was appointed captain-general of Old Castile and general of an army of reserve. He had also been elected to the cortes as member for Seville, and on the formation in that city of a revolutionary junta by Cordova, he repaired thither to aid that general in his movements against Espartero, between whom and himself there existed a strong feeling of jealousy; but the insurrection was suppressed, and Narvaez was compelled to seek refuge in France (1840). While there he continued his machinations against the Spanish dictator, in conjunction with Maria Christina; and in 1843 he placed himself at the head of the Christinos, landed at Valencia, defeated Gen. Seoane at Torrejon de Ardoz (July 22), and made his entry into Madrid, which led to the overthrow of Espartero. In 1844 he became prime minister, and at the same time he was created field marshal, count of Canadas Altas, and duke of Valencia. Maria Christina was permitted to return to Madrid, and the opponents of the constitution of 1845 were put down by the iron rule of Narvaez. His arbitrary disposition gave offence to many members of his own party, and brought him into collision with Maria Christina herself. He resigned in Feb. 1846; but so indispensable was his energy and his military ability in quelling disturbances and in ruling the country, that, after having officiated for a short time as ambassador in Paris, he was recalled to power in 1847, but soon again dismissed on account of ceaseless quarrels with Maria Christina. On Oct. 20, 1849, he was once more recalled, and confirmed in power in 1850 by the support of a majority of the people. The attitude of the nation toward foreign powers began to assume greater dignity under the administration of Narvaez, who opposed the British government's attempt to interfere in Spanish affairs with a firmness which led to the withdrawal of the British minister (Sir Henry Bulwer) from Madrid, and to the interruption of diplomatic relations between the two governments until a reconciliation was effected by King Leopold of Belgium. His great influence in the government provoked at length the jealousy of the queen, and caused him to tender his resignation, Jan. 10, 1851, to become ambassador to Vienna. After Espartero's withdrawal from power (July 14, 1856), and O'Donnell's brief term of office, Narvaez was again called upon to preside over the cabinet (Oct. 12), but without special office, the portfolio of foreign affairs being confided to the marquis of Pidal. The concordat of 1851 with the holy see, which had been modified on various subsequent occasions, was restored to its original character immediately after his advent to power (Oct. 13). The outbreak at Malaga on Nov. 16 was put down by force of arms, and all parts of Spain except Catalonia were relieved from martial law. A general amnesty to the Carlist rebels of 1855 and 1856 was promulgated, April 8, 1857. Narvaez now impaired his popularity by strengthening the influence of the crown in the senate, making the dignity of senator hereditary, and admitting as members to it the dignitaries of church and state. He also caused stringent laws to be enacted against the liberty of the press, and introduced laws for the administration of municipal and provincial affairs after the model of those of France, which were adopted by the cortes, but alienated from him the sympathies of a considerable portion of the conservative party. Finally he tendered his resignation, Nov. 1, and his cabinet was succeeded by the Armero administration, Nov. 15, 1857.

NARWHAL, a cetacean mammal, of the genus *monodon* (Linn.), frequenting the arctic seas, and occasionally straying to northern Europe; its popular name is sea unicorn. It has no proper teeth, but in the males, and sometimes in the females, there are 2 tusks arising from the intermaxillary bone; these are true incisors, but only one, usually the left, is developed, the other remaining rudimentary in most cases; the former is long, pointed, spirally twisted and grooved, and directed straight forward, growing through life from a permanent pulp as in the elephant. The tusk, of solid ivory and 6 or 8 feet long, is a most formidable weapon in such an active and powerful animal, and is sometimes driven deeply into the timbers of a ship. According to Mulder there are 2 other small teeth, contained in the gum of the upper jaw. In the only well ascertained species (*M. monoceros*, Linn.) the body may attain a length of 15 or 16 feet, and the tusk from 6 to 10 additional; there is no well marked separation between the head and body; the forehead rises suddenly, and the blow-hole is on the top of the head; the eyes and mouth are small, and the lips unyielding; the pectorals are small for the size of the animal; the caudal is transverse, bilobed, and about 4 feet wide; instead of a dorsal fin there is a low fatty ridge 2 or 3 feet long in the middle of the back. The prevailing color is dark gray above with numerous darker spots, white on the sides and below, on the former with grayish spots; some specimens are very light-colored, and the young are said to be bluish gray. The food consists principally of cephalopod mollusks, and, on the authority of Scoresby, of flat and other fishes, which it transfixes with its horn; other uses of this weapon are for breaking the ice for the purpose of obtaining air, and for defence. Narwhals are sometimes seen in bands of 10 to 20, sporting about whaling ships, elevating their tusks above the water, and playing about the bows and rudder; they are migratory, and their appearance is hailed with delight by the Greenlanders, who consider them the certain forerunners of the right whale; and this, the result of their experience, is probably due to both using the same kind of food. They are harpooned for their ivory, oil, and flesh; the last is considered a delicacy as food by the Greenlanders. The blubber is from 2 to 4 inches thick, and yields a very superior oil. The ivory of the tusk is very hard and white, and takes a high polish; it was formerly a valuable article of commerce, when the origin of the horns was less known; a famous throne of the kings of Denmark is said to be made of the ivory of narwhals' tusks. Ignorance, superstition, and exaggeration have made a variety of fabulous animals from the basis afforded by the tusk or horn of the narwhal.

NASEBY, a village in Northamptonshire, England, where was fought a decisive battle between the royal forces commanded by Charles I. and those of the parliament under Fairfax, June 14, 1645. Early in June Fairfax, who was besieging Oxford, alarmed at the intelligence of the capture of Leicester by the royal army, moved off through Buckinghamshire into Northamptonshire, without any certain knowledge of the course which the king was taking. Early on the morning of the 14th the hostile armies, about equal in numbers, confronted each other, the parliamentarians occupying a strong position near Naseby, and the king's troops being drawn up one mile south of Harborough. The royal centre was commanded by the king in person, the right wing by Prince Rupert, and the left by Sir Marmaduke Langdale. Fairfax, supported by Skippon, commanded the centre of his army, with Cromwell on his right wing and Ireton on his left. Yielding to the impetuous counsels of Rupert, backed by the young nobles and gentry, Charles gave the order for an attack, and Rupert with his cavaliers charged with such fury upon Ireton that the left wing of the parliamentary army was broken and put to flight, its leader after a stout resistance being wounded and taken prisoner. Rupert, however, "incorrigible in his rashness," repeated the error whereby the battles of Edgehill and Marston Moor had been lost, and, instead of supporting his royal kinsman, detached himself from the main battle to pursue the fugitives. The royal centre was meanwhile hotly engaged with the troops under Fairfax and Skippon, the generals on both sides displaying a valor and skill which for a long time rendered the issue uncertain. On the royal left Cromwell, after an obstinate encounter, routed the forces of Sir Marmaduke Langdale, and, leaving a few squadrons to watch the fugitives, fell suddenly upon the rear of the royal centre, which, unsupported by either of its wings, almost immediately surrendered. One regiment alone held out for the king, but was finally broken by repeated charges. At this moment Rupert returned from his needless pursuit of Ireton's troops, with his men and horses exhausted and the time for effective aid gone by. Charles, who during the battle had, according to Hume, "displayed all the conduct of a prudent general and all the valor of a stout soldier," urged them by a final charge to redeem the day; but the appeal was disregarded, and the king was only enabled to insure his personal safety by a precipitate flight. The royalists lost 800 killed and 4,500 made prisoners, beside their artillery and ammunition and several thousand stand of arms. A number of private letters between Charles and his queen, subsequently published under the title of "The King's Cabinet Opened," also fell into the hands of the parliamentarians. The latter lost 1,000 killed. This battle is vividly described in one of Macaulay's ballads, of which it is the subject.

NASH, a N. E. co. of N. C., bounded S. W. by Contentny creek and N. by Swift creek, and intersected by Tar river; area, 640 sq. m.; pop. in 1850, 10,657, of whom 4,056 were slaves. The surface is uneven. The productions in 1850 were 324,146 bushels of Indian corn, 113,449 of sweet potatoes, 345 bales of cotton, and 5,388 lbs. of tobacco. There were 4 grist mills, 8 saw mills, 8 turpentine distilleries, 17 churches, and 726 pupils attending public schools. Capital, Nashville.

NASH. I. Abner, an American lawyer and politician, born in Prince Edward co., Va., died in Philadelphia in 1786. He went in early life to Newbern, N. C., where he was a prominent lawyer for many years. He represented Newbern in the first provincial congress, which met there Aug. 25, 1774, and throughout the revolution was active in the whig cause. He was one of the provincial council in 1775, and of the congress and the committee that formed the state constitution in 1776; was elected to the house of commons from Newbern in 1777, and from Craven co. in 1778. In 1779 he was speaker of the senate, and in December of that year was chosen governor of the state. The period of his administration was by far the gloomiest portion of the revolutionary war in North Carolina, and he seems to have been of a too easy temper or too feeble health for such times. His first assembly, April 17, 1780, made Gen. Caswell the commander of all the militia of the state, though the constitution made the governor the commander-in-chief; and at its session in September it appointed a board of war to manage the military operations of the state, a still larger invasion of his prerogatives. When the assembly met in January, it made the governor a member only of a "council extraordinary," to which the supreme executive authority was confided. In the spring of 1781 he declined to serve longer, and was succeeded by Gov. Burke. From 1782 until his death he was a member of the continental congress. II. Francis, an American soldier, brother of the preceding, died in 1777. While clerk of the superior court for Orange co., N. C., he held a captain's commission under the crown. In this capacity he served under Gov. Tryon against the regulars, and in the battle at Alamance in 1771. He was a member of the provincial congress which met at Hillsborough, Aug. 21, 1775, and was appointed by that body lieutenant-colonel of one of the two regiments then raised for the continental service. In Feb. 1777, he was made a brigadier-general by the continental congress, joined Gen. Washington, and commanded a brigade at the battle of Germantown, Oct. 4 of the same year, where, though in charge of the reserve, he was mortally wounded by a cannon ball. III. Frederic, an American jurist, son of Gov. Abner Nash, born in Newbern, N. C., Feb. 9, 1781, died in Hillsborough, Dec. 5, 1858. He was graduated at Princeton in 1799, and at once applied himself to the study of the law. In 1804–'5 he was a member of the house of commons, in which he represented his native town. In 1808 he removed to Hillsborough, where he resided during the rest of his life. In 1814–'15 he represented Orange co. in the legislature, and in 1827–'8 the town of Hillsborough. He was appointed judge of the superior court in 1818, resigned in 1826, and was reëlected in 1836. In 1844 he succeeded Judge Gaston on the bench of the supreme court, of which he became the chief justice upon the resignation of Judge Ruffin. This place he occupied till the close of his life.

NASH, Joseph, an English water color painter, born about 1813. He has a great reputation as a painter of architecture, and in his "Architecture of the Middle Ages" (fol., 1838), and "Mansions of England in the Olden Time" (4 vols. fol., 1839–'49), lithographed in colors from his drawings, has produced two of the most magnificent illustrated works ever published. He has occasionally attempted historical scenes from Shakespeare and Scott, and miscellaneous subjects, such as the "Queen's Visit to Lincoln's Inn Hall" (1846), &c.

NASH, Richard, better known as Beau Nash, born in Swansea, Glamorganshire, Oct. 18, 1674, died in Bath, Feb. 3, 1761. After a preliminary education at Caermarthen school, he was entered at Jesus college, Oxford, where his career was chiefly distinguished by dissipation. To preserve him from an imprudent marriage, he was at 17 years of age removed from the university, and a commission in the army was procured for him; but wearying of the monotony of barrack life, he entered himself a student of law in the Middle Temple. His life in reality was devoted to pleasure, and with resources supplied from the gaming table he became a leader of fashionable society and an accomplished man about town. On the occasion of an entertainment given by the members of the Middle Temple to William III., he conducted the pageant with so much tact and address that the king offered to knight him. Nash, sensible of his uncertain means of support, declined the honor. In 1704 he visited Bath, then just rising into importance as a watering place, but which had been placed under the ban of a Dr. Radcliffe, who, in retaliation for an alleged insult, had threatened to write down the waters. At this juncture Nash stepped forward to the assistance of the inhabitants, and, getting himself appointed master of ceremonies, succeeded in a short time in securing for the place the reputation of an agreeable resort for valetudinarians as well as mere seekers of pleasure. Decency of dress and civility of manners were enforced in the public resorts, an elegant assembly room was built, streets and buildings were improved, and in process of time a handsome city was established in place of what had been only a dull provincial town. Nash himself shared in the prosperity which he had promoted, and, from the influence which he wielded and the deference in which he was held by citizens as well as visitors, was styled the "king of Bath." Supporting himself still by the gaming table, where he played with skill and with uniform fairness, he lived in great pomp, travelling, while in the heyday of his prosperity, in a coach and six with outriders, and dispensing charities with reckless profusion. It is mentioned to his credit, that notwithstanding his own habit of gambling he took pains to put young and thoughtless persons on their guard against indulgence in the practice. Toward the close of his life his glory perceptibly waned, and after the act of parliament against gambling had deprived him of his principal means of support, he lived in comparative indigence. He was honored by a public funeral, and a marble statue of him was placed in the pump room of the king's bath. Nash was ungainly in person, with coarse and ugly features, and dressed in a style of tawdry magnificence. A life of him by Goldsmith, published anonymously in 1762, is included in Peter Cunningham's edition of Goldsmith's works (4 vols. 8vo., London, 1854).

NASH, Thomas, an English pamphleteer and dramatist, born in Lowestoft, Suffolk, in 1558, died in London in 1600 or 1601. He took the degree of B. A. at Cambridge in 1584, but was subsequently expelled for satirizing the authorities. For several years he travelled on the continent without any settled employment. In 1589 he fixed his abode in London. The prelatists and Puritans being then engaged in a war of vituperation, Nash espoused the cause of the former, and wrote a series of bitter pamphlets against their opponents, the principal of which are entitled: "Pap with a Hatchet," "An Almond for a Parrot," "A Countercuffe to Martin Junior," and "Martin's Month's Minde." He aided Marlowe in writing "Dido, Queen of Carthage," and produced in 1592 a comedy of his own styled "Summer's Last Will and Testament," which was acted before Queen Elizabeth. Nash's dramas were so ill received that he sank into extreme poverty. He describes his forlorn condition in his "Pierce Pennilesse, his Supplication to the Divell," which appeared in 1592. He had recourse once more to his old trade of pamphleteering, and assailed the unfortunate Dr. Gabriel Harvey with all the satire and pungency of which he was master. The doctor made a stout defence, but he was no match for Nash, and the war became so fierce that the archbishop of Canterbury ordered the books of both combatants to be seized. In 1597 Nash produced a satirical play called "The Isle of Dogs," the representation of which led to his confinement in the Fleet prison.

NASHUA, an important manufacturing city of Hillsborough co., N. H., at the junction of the Merrimack and Nashua rivers; pop. in 1860, including Nashville, at one time a separate municipality, 10,065. The Nashua river has here a fall of 65 feet in about 3 m., affording great water power. There are several large manufacturing associations, of which the most extensive is the Nashua manufacturing company, chartered in 1823, with a capital of $1,000,000. It has 4 mills, which contain 40,000 spindles and 1,200 looms, consume 5,500,000 lbs. of cotton, and produce 15,600,000 yards of cloth per annum, employing about 150 males and 850 females. The Jackson company, with a capital of $600,000, runs 3 mills with 22,000 spindles and 700 looms, consuming 3,500,000 lbs. of cotton, and producing 9,000,000 yards of cloth per annum. The Harbor manufacturing company, with a capital of $75,000, runs 5,000 spindles and 100 looms, and manufactures 1,100,000 yards of cotton cloth per annum. There are also an extensive bobbin and shuttle factory, 2 large iron founderies, 2 large machine shops, a forging shop, a card and fancy paper manufactory, an edge tool manufactory, and a watch factory. There are also corporations for the manufacture of iron, locks, &c. Nashua contains 10 churches (1 Baptist, 3 Congregational, 1 Episcopal, 2 Methodist, 1 Roman Catholic, 1 Unitarian, and 1 Universalist), 3 banks, 1 savings bank, and 2 newspaper offices. It has communication by railroad with all the principal cities of New England, the Nashua and Lowell, the Worcester and Nashua, the Nashua and Concord, and the Nashua and Wilton railroads all centring here.

NASHVILLE, a city, port of entry, and the capital of Tennessee, and seat of justice of Davidson co., situated on the Cumberland river, 200 m. above its junction with the Ohio, in lat. 36° 9′ 33″ N., long. 86° 49′ 3″ W.; pop. in 1850, 18,140; in 1860, 23,715. The city is built chiefly on the south side of the river, on the slopes and at the foot of a hill rising about 200 feet above the water. The Cumberland is navigable by steamboats of 1,500 tons for 50 m. above the city, and by smaller boats to the falls, 500 m. There are 5 railroads radiating from Nashville, viz.: the Tennessee and Alabama, Louisville and Nashville, Edgefield and Kentucky, Nashville and Chattanooga, and Nashville and north-western. The city is generally well built, and there are numerous imposing public and private buildings. One of the finest of the former is the new capitol, situated on an eminence 175 feet above the river and constructed inside and out of a beautiful variety of fossiliferous limestone. It is 3 stories high, including the basement. At each end there is an Ionic portico of 8 columns, each 4 feet 6 inches in diameter and 33 feet 5 inches high, and each of the sides has also a portico of 6 columns. A tower rises above the centre of the roof to the height of 206 feet from the ground. It has a quadrangular rusticated base, 42 feet high, surmounted by a circular cell 37 feet high and 26 feet 8 inches in diameter, with 8 fluted Corinthian columns, designed from the choragic monument of Lysicrates at Athens. The dimensions of the whole building are 138 by 238 feet, and it cost over $1,000,000. It is approached by 4 avenues which rise from terrace to terrace by broad marble steps. The edifice is considered the handsomest state capitol in the Union. The new court house is a large building on the public square, with an 8-columed Corinthian portico at each end, and a 4-columned portico at each side. The state bank is a handsome Doric building. Among the other prominent edifices are the gaol, penitentiary, theatre, odd fellows' and masonic halls, city hospital, university, and school houses. There are two fine bridges over the Cumberland river: one, a railroad bridge of wood, with an immense draw of 280 feet, and 2 stationary spans, each of 200 feet, was finished in 1859 at a cost of $240,000; the other, a wire suspension bridge of more than 700 feet span, and 110 feet above the water, was begun in 1850, and cost about $100,000. The city water works were constructed in 1833, and the total expense up to 1860 has been more than $500,000. The water is raised from the river to 4 reservoirs, which have an aggregate capacity of 1,600,000 gallons. Gas was introduced into the city in Feb. 1850.—Among the public institutions, the most important is the Nashville university, incorporated in 1785 under the name of Davidson academy, and in 1806 as Cumberland college. It received its present title in 1826. It has now (1860) about 260 students in the literary department, and 400 in the medical school. The literary department was united in 1855 with the "Western Military Institute," and took the latter name. The students receive in addition to their classical education a quasi-military training. The main building is a handsome Gothic edifice of stone. It has a library of 15,000 volumes. The medical department, opened in 1850, also occupies a fine building, and possesses an extensive museum, beside having the charge of a valuable mineralogical cabinet of 20,000 specimens collected by the late Dr. Gerard Troost. Shelby medical college is a new and flourishing institution. The female academy, founded in 1816, has about 450 pupils. A public school system went into operation in 1855, and there are now 3 large schools, with an aggregate attendance of 2,000 pupils. The Roman Catholics have 4 schools and a theological seminary. The historical society has a good museum and library. The state library in the capitol has 40,000 volumes, and the mechanics' library association 5,000. A young men's mercantile library association has recently been formed. The principal benevolent institutions are the city hospital, Protestant and Catholic orphan asylums, house of industry, hospital of the sisters of charity, workhouse established in 1859, and the Tennessee blind asylum founded in 1844. The penitentiary is a handsome stone edifice built around an open court, and has about 400 convicts. There are 27 churches, including a Roman Catholic cathedral, 8 banks, a savings bank, 3 insurance companies, and several large hotels, one of which, the Maxwell house, now building (1860), will accommodate 600 guests. A paid fire department, with 3 steam fire engines, was introduced in 1860. The periodical press comprises 5 daily, 8 weekly, and 8 monthly publications.—The commerce of Nashville is very large, being carried on by river and railroads, and by turnpike roads, to the construction of which the city has devoted a great deal of attention. The revenue of the port amounts to about $40,000 a year, but the government has not erected a custom house. The tonnage of the district, June 30, 1859, was 5,120, all enrolled and licensed; there was no return of the value of imports and exports. The average annual shipments are 30,000 bales of cotton, 6,000 hhds. of tobacco, 2,000,000 bushels of wheat, 6,000,000 of Indian corn, 10,000 casks of bacon, 25,000 hogs, and 2,500 tierces of lard. The neighborhood is a famous stock-raising country, and has a high reputation for blood horses, jackasses, mules, cattle, sheep, hogs, and Cashmere goats. The leading business of the city is in dry goods, hardware, drugs, and groceries. Book publishing is carried on more extensively than in any other western town, and the publishing house of the southern Methodist conference is one of the largest book manufactories in the United States. The manufacturing are less important than the commercial interests. There are 3 flour mills, 8 or 10 planing mills, and 8 or 10 machine shops. The value of taxable property is about $15,000,000. Seven miles from the city is the state lunatic asylum, and 12 m. E. is the Hermitage, the celebrated residence of Andrew Jackson. The municipal government is vested in a mayor, 8 aldermen, and 16 councilmen.—The first permanent settlement at Nashville was made in 1779-'80, and the town was incorporated in 1784, received a city charter in 1806, and was made the state capital in 1812.

NASMITH, David, a Scottish philanthropist, born in Glasgow, March 21, 1799, died in Guildford, England, Nov. 17, 1839. He began his career by imparting religious instruction to prisoners, and laboring to establish Sunday schools and Bible societies. In 1821 he became secretary-general to the united religious and benevolent societies of Glasgow, and afterward engaged in the formation of associations for the moral and religious improvement of young men in large towns, 70 of which associations he was instrumental in establishing in the British isles, France, and America, between 1823 and 1826. A still more important project of his was the institution of town and city missions. The Glasgow city mission, established in 1826, and which may be regarded as the model of all succeeding ones, comprehended 8 denominations of Christians, and had in its employ 8 missionaries, before the first year of its existence expired. In 1828 he entered regularly on his career as a missionary, visiting Dublin and the principal cities of the south of Ireland. In 1830 he travelled over the greater part of the United States and Canada, and on returning to Europe proceeded to France, and formed missions in Paris and Havre. In 1835 he removed to London, where a mission was established on a very humble scale, only 4 missionaries being at first employed, the aggregate of whose salaries amounted to £297 per annum. In 1855 it had 320 missionaries, and the sum total of their salaries exceeded £28,000. He continued to exert himself to the last for the advancement of his religious and philanthropic projects, and was engaged in organizing a town mission in Guildford when he was seized with the sickness that caused his death. —See Dr. Campbell's "Memoirs of David Nasmith" (London, 1844).

NASSAU, a N. E. co. of Fla., bordering on the Atlantic, separated from Georgia on the N. and N. W. by St. Mary's river, and bounded S. by the Nassau river; area, 576 sq. m.; pop. in 1850, 2,164, of whom 1,077 were slaves. It has a level surface and sandy soil. The productions in 1850 were 404,305 lbs. of rice, 29,812 bushels of Indian corn, 279 bales of cotton, and 44 hogsheads of sugar. There were 8 grist mills, 1 saw mill, 1 tannery, and 1 turpentine manufactory. Amelia island, included in the county, occupies the whole of the coast. Capital, Nassau Court House.

NASSAU, an island in the Pacific ocean, in lat. 11° 30′ S., long. 165° 30′. W., discovered by Capt. Sampson, of the American whaler whose name it bears, in 1835. It is low and apparently uninhabited, but wood and water are plentiful. It is supposed to be identical with Ranger island, which an English whale ship so called reported in 1848 to be in lat. 11° 35′ S., and long. 166° 45′ W.

NASSAU, the capital of New Providence, the most important of the Bahama islands, in lat. 25° 5′ N., long. 71° 21′ W.; pop. about 7,000. It is the seat of government of the Bahamas, and has a good harbor for vessels drawing 12 to 15 feet of water. The town is built on a rather steep hill, but is well laid out, and contains handsome residences and public buildings. It is a place of considerable trade. The chief exports are cotton, pimento, and salt; and the imports consist of provisions, lumber, &c. The climate is remarkably mild and healthy, and the place is resorted to by invalids from the north.

NASSAU, a German duchy, bounded by the Prussian Rhenish provinces, the grand duchy of Hesse-Darmstadt, the electorate of Hesse-Cassel, Hesse-Homburg, and Frankfort; area, 268 sq. m.; pop. in 1859, 439,454, comprising 229,708 Protestants, 202,067 Roman Catholics, 530 German Catholics, 138 Mennonites, and 7,016 Jews. The Westerwald mountains cover nearly the whole N. and the Taunus mountains the whole S. part of the duchy. The valleys of Nassau, on the shores of the Rhine and Lahn, are among the most beautiful in Germany. Nassau also contains the famous watering places Ems, Wiesbaden, Schwalbach, and other noted mineral springs. Among the best known wines produced in Nassau are those of Hochheim (whence the general name of hock), Marcobrunn, Rüdesheim, Asmannshausen, and above all those of Johannisberg, the property of the Metternich family. The other products are fruit, hemp, flax, grain, tobacco, iron, lead, copper, and other minerals. The forests abound with game and with timber and fire wood. The smelting and manufacturing of metals form an important branch of industy. There are also manufactories of leather, paper, and several other articles.—Nassau is divided into 28 bailiwicks, and governed by a duke, who, according to the new constitutions of 1817 and 1848, is assisted by a ministry and by a chamber. The receipts amounted in 1859 to about $2,000,000, the expenditures to $2,200,000, and the public debt to nearly $5,000,000. The federal contingent of Nassau consists of 5,498 soldiers. The Protestants of the duchy are subject to the bishop of Wiesbaden, and the Catholics to the bishop of Limburg. Capital, Wiesbaden. The summer residence of the duke is Bieberach.—In Germanic antiquity Nassau was inhabited by various tribes of Alemanni. After their incorporation with the Frankish empire various families rose into prominence, among which was that of Lurenburg. Rupert I. of Lurenburg married a countess of Arnstein, and his son Walram I., together with his nephew, first assumed the title of count of Nassau, after a small rural settlement of that name, which is mentioned in a public record as early as A. D. 794. Walram's grandsons, Walram II. and Otho, became the founders of the Walram and Otho or Gueldrian line. The German princes of Nassau are descendants of the former, and the Dutch princes of Orange of the latter, hence called Nassau-Orange. Walram II. was the father of Adolphus of Nassau, who was king of Germany from 1292 to 1298. His grandsons Adolphus II. and John I. divided their inheritances into several branches, which were eventually reunited by Louis II., who died in 1625. His sons again divided the country into several branches, some of which are now extinct, while that of Nassau-Weilburg is the more immediate source of the present line of dukes, who acquired their sovereignty by joining the confederation of the Rhine (1806). The treaty of 1814 restored to them the territory on the left bank of the Rhine, which they had lost in 1795. All the German possessions of the Nassau-Orange line were acquired by the dukes of Nassau in exchange for territory ceded by them to Prussia. They also acquired at that time the hereditary right to the succession of Luxemburg, which however they sold to Holland in 1839 for about $350,000. More liberal institutions, which had already been projected and partly called into life in 1847, were secured to the duchy by the revolution of 1848, when the domains of the crown became public property, and when the upper house (*Herrenbank*) was supplanted by a popular legislative assembly, and a constitution was promulgated. The subsequent reaction in German politics gave rise in Nassau to the withdrawal of the radical members from the chambers, after which a new electoral law (Nov. 1851) was passed, the effect of which was to purge it of the democratic element, and to give a majority to the government.—The present duke Adolphus was born July 24, 1817, succeeded his father William Aug. 20, 1839, and married in 1844 a daughter of the grand duke Michael of Russia, who died in 1845. His second wife, a daughter of Prince Frederic of Anhalt-Dessau, whom he married in 1851, has borne him William, the crown prince (1852), and Prince Francis (1859).

NASSAU or Poggy Islands, two islands off the W. coast of Sumatra; pop. about 1,000. The northern island is situated between lat. 2° 33′ and 2° 52′ S., and the southern between 2° 50′ and 3° 20′ S., and both are included between long. 99° 37′ and 100° 41′ E. They consist of high steep hills, covered with timber of very large size, and well suited for nautical purposes. The sago tree constitutes the chief article of food. The natives are divided into small tribes, each tribe occupying the banks of a river and living in one village.

NAST, William, D.D., an American clergyman, born in Stuttgart, Germany, about 1800. He was educated at the university of Tübingen with a view of entering the ministry of the established church, but preferred literary pursuits, and after graduating became connected with the press. In 1828 he came to America, was engaged as a teacher at West Point, and subsequently became a professor in Kenyon college, Ohio. In 1835 he joined the Methodist Episcopal church, and was soon after licensed to preach. At the conference of the same year he was appointed to Cincinnati, O., with a view of establishing a German mission in that city. This mission proved very successful, and in 20 years German Methodist churches have been established in almost every part of the United States, and in various parts of Germany and Scandinavia. Dr. Nast has edited the "Christian Apologist," and translated a large number of Methodist works into German, beside writing several valuable books in that language. He is now engaged, in connection with his editorial duties, in writing a commentary on the New Testament in the German language, parts of which have appeared.

NATAL, a British colony on the S. E. coast of Africa, about 300 m. N. E. from British Caffraria, from which it is separated by a thinly inhabited country called Caffraria Proper; pop. according to the "Cape Almanac" for 1858, 108,700, including 6,550 whites. It lies between lat. 28° and 31° S. and long. 29° and 31° E. It is bounded N. and N. E. by the rivers Tugela and Umzimyati, which separate it from the country of the Zooloo Caffres; S. E. by the Indian ocean; S. and S. W. by the river Umzimkooloo, which divides it from Caffraria Proper; and W. and N. W. by the Kahlamba or Drakenberg mountains, dividing it from the Orange River republic. (See Boers.) Its length is about 200 m.; breadth from the sea to the mountains about 100 m.; area, 18,000 sq. m. For police purposes the colony has been divided into 6 districts, 3 of which are in the coast division, and 3 in the interior. The settled parts are divided into counties, but the region inhabited by natives only has not yet been so divided. There are two towns, Pietermaritzburg, the capital, and D'Urban, the port, beside a number of villages scattered over the colony. Pietermaritzburg contains 500 houses, with a white population of about 1,600. D'Urban has 450 houses, and a white population of about 1,200. The latter town stands on the N. side of Port Natal, a circular basin about 10 m. in circumference, communicating with the sea by a narrow channel. Its mouth is obstructed by a sand bar, which since recent improvements admits vessels drawing from 15 to 20 feet of water; and there is no doubt that the depth is capable of being further increased.—The country rises from the sea coast in a series of terraces to an elevation of several thousand feet, and presents many varieties of climate, soil, and scenery. Along the Indian ocean is a belt of undulating or hilly land about 15 m. broad, producing sugar, coffee, indigo, and almost every other tropical plant, together with the mulberry, olive, vine, oats, beans, potatoes, and Indian corn, and diversified with occasional tracts of forest. Succeeding this belt is a higher tract displaying the productions of a temperate climate; still further inland is a fine grazing district, and back of this a succession of hills extending to the foot of the Kahlamba mountains, which rise abruptly like a wall 8,000 feet above the sea, and nearly 4,000 feet above the country at their base. The climate is exceedingly pleasant and healthful. In the neighborhood of the coast the weather is warm, the average temperature being about 74° in summer and 63° in winter; but in the elevated districts it is much cooler. The rainy season continues from March to the end of September, during which violent thunder storms are frequent. The grazing country produces abundant crops of wheat, oats, and other cereals of the temperate regions, and excellent apples, pears, walnuts, peaches, apricots, and nectarines. From the coast upward the whole is well watered by numerous streams and several considerable rivers, none of which are navigable. All the rivers are low in the dry season, but become full in a few hours in rainy weather, and rush down like torrents. Along the coast the soil is sandy, with masses of erupted rocks and sandstone interspersed. The high lands are composed of stratified sandstone, with a vein of granite running in a N. E. direction; and the soil is mostly a friable loam. The coast line, extending from high water mark 5 or 10 m. inland, is said to be peculiarly adapted for the growth of cotton; and it is estimated that 1,000 sq. m. of this district are capable of producing the most valuable of the cottons of America without the accompanying drawback of a climate unsuited to the English constitution. Mr. McLeod, in his "Travels in Eastern Africa," says: "The yield of one acre having 6,000 plants on it averaged 2½ lbs. of seed cotton per plant, which, when reduced by the cotton-cleaning gin, gave 1¼ lbs. of clean cotton per plant. There are at the lowest computation 640,000 acres on the lower or coast line terrace of the colony which will produce cotton of this quality, so that our Liverpool merchants may look forward to a supply of no less than 4,800,000,000 lbs. of cotton from one of the smallest and latest acquired of our colonies." There are also 1,280,000 acres capable of producing sugar; the saccharine qualities have been proved to be stronger than the Mauritian sugars, and not surpassed by the best Trinidad. The virgin soil is said to yield 3 to 4 tons of sugar per acre. Natal promises to prove very rich in mineral resources. Iron ore is found in many places, and copper, tin, and lead have been discovered. Coal is also found, but it is not of a very good quality. The hippopotamus, crocodile, leopard, hyæna, elephant, buffalo, and eland, several varieties of antelope, and snakes, are all found in different parts of the country.—The white population comprises about 3,400 of British and 2,800 of Dutch descent, and a small German settlement of about 350 on the banks of the Umgem. The colored population are Zooloos, of the same family as the Caffres. They are a pastoral people, and disinclined to agricultural labor; they are as noted for their honesty as the Caffres are for their cattle-stealing propensities. The recorder of Natal states, in 1859, that colonial history presents no instance of 6,000 to 7,000 colonists living in such security amid 100,000 aborigines. Agriculture is progressing, and in 1859 there were about 50,000 acres under cultivation, producing upward of 600,000 bushels of Indian corn. There were in 1859 7 sugar mills of great power in operation. The exports amounted to £15,000 in 1850, £20,000 in 1852, £45,000 in 1855, £78,000 in 1857, £91,000 in 1858, and £100,000 in 1859. They include beef, pork, tallow, hides, grain, flour, butter, wool, arrowroot, ivory, &c. The imports in 1856 amounted to £102,518, a considerable proportion of which was machinery for the manufacture of sugar and flour.—In 1855 there were 31 schools, attended by 1,295 scholars, supported or assisted by government. A superintendent of education was appointed in 1859, and £2,022 was voted for educational purposes in 1860. There are several schools under the care of missionaries, and some excellent ones both for Europeans and natives established under the auspices of the English bishop; £5,000 per annum is set apart from the revenue for the education of the natives. There are public libraries and mechanics' institutes at Pietermaritzburg and D'Urban. There is a handsome cathedral at the capital, a large church at D'Urban, and several churches at other places, belonging to various denominations. There is also a Roman Catholic bishop. The American mission is composed chiefly of Presbyterian and Congregational ministers; and there are about 10 stations in different places.—Natal has a lieutenant-governor (in 1860, John Scott), under the general control of the governor of the Cape of Good Hope. The revenue in 1855 was £34,050, and the expenditures £33,895. There is a council composed of 4 chief officers, and 12 members who are elected by the people. The qualification for voters is the possession of freehold property worth £50, or the occupation of a house or land at a rent of £10 a year; all voters are eligible to membership. The Roman-Dutch law is in force, but trial by jury, both in criminal and civil cases, has been introduced. A constitutional charter was promulgated for the colony in 1859, similar to that of the Cape of Good Hope, and municipal institutions were at the same time granted to the principal towns. —The Portuguese discovered the coast of Natal on Christmas day, 1498, and named it in honor of the day. It was visited and favorably reported upon, toward the close of the 17th century, by Dampier, Woodes Rogers, and several Dutch navigators. Subsequently a Dutch expedition purchased the territory from some native chiefs. Its actual colonization, however, was not projected till 1823. In that year Mr. Thomson, a merchant of Cape Town, and Lieuts. Farewell and King of the English navy, in the course of a trading voyage to the E. coast of Africa, put into Natal harbor. In 1824 Lieut. Farewell, having visited it again, obtained from the king of the Zooloos, who had conquered the country, a grant of land around Port Natal, where he hoisted the British flag and took possession. In 1834, in consequence of an application to the governor of the Cape of Good Hope from the Zooloo king for a white settlement to be formed at Natal, a few emigrants proceeded from that colony. In 1835 the American missionaries commenced operations in the territory; but nothing was done on a large scale till about 1838, when the emigrant Dutch farmers who were dissatisfied with the British rule in the Cape Colony ascended to the sources of the Orange river, and found their way across the Quathlamba range. In 1840 so many of these people had arrived in Natal that it was estimated there were 600 men among them capable of bearing arms. They founded Pietermaritzburg with a view to make it the capital of their settlement, which they called the republic of Natal, and delegated the necessary powers of government to a council of 24 with a president at their head. The men capable of bearing arms were enrolled as a militia subject to the council. When the English government, in 1845, declared their sovereignty to extend over Natal, and sent a military expedition to take possession of the country, after some resistance the more resolute of the emigrants, under Pretorius their leader, abandoned the territory rather than live under the British rule, in which they had lost all confidence in consequence of inconsiderate interference with their titles to lands.—See "Ten Weeks in Natal," by John William Colenso, bishop of the diocese (Cambridge, 1853); McLeod's "Travels in Eastern Africa" (London, 1860); and "The Colony of Natal," by Robert James Mann, M.D. (London, 1860).

NATCHEZ, a city and the capital of Adams co., Miss., situated on the E. bank of the Mississippi river, 289 m. by water above New Orleans, in lat. 31° 34′ N., long. 91° 25′ W.; pop. in 1860, 6,616. It is built on the summit of a bluff, 150 feet above the water, and on the narrow strip of land between the foot of the hill and the river. The latter portion of the city, called Natchez Landing or Natchez-under-the-Hill, was formerly notorious for crime and licentiousness, but has since redeemed its reputation. It communicates with the upper quarters by broad and well graded roads. The streets of the city are regular, lighted with gas, generally gravelled in the roadway, and lined with shade trees. The houses are principally of brick, and the private residences are adorned with gardens. The brow of the bluff along the whole front of the city is occupied by a park. There are 8 churches (1 Baptist, 1 Episcopal, 1 Jewish, 1 Methodist, 3 Presbyterian, and 1 Roman Catholic), a court house and gaol, a city hospital, a U. S. marine hospital, and a number of good schools. The Natchez institute, supported by a municipal tax, comprises a primary department, a grammar school, and a high school; it is conducted by a superintendent and 15 teachers, and has 616 pupils. Two daily newspapers are published in the city. In the vicinity are the seats of many wealthy families. The business of Natchez is mainly in cotton, which is brought to this market from the adjoining counties, and in the supply of provisions and implements for the neighboring plantations. Daily steam packets communicate with New Orleans, Vicksburg, and Memphis, and a stage line connects at Brookhaven with the New Orleans and Jackson great northern railroad. The climate of Natchez is pleasant and salubrious. The winters are temperate, though variable, and the summers are long and equable. The thermometer seldom rises above 90°.—The site of Natchez was selected by a party sent by Lemoine d'Iberville in 1700 as the chief place of a number of proposed settlements in the lower Mississippi territory, and the name of Rosalie was given to it in honor of the countess of Pontchartrain, whose husband had been one of Iberville's patrons. No settlement was made however until 1716, when Lemoine de Bienville, Iberville's brother, built Fort Rosalie on Natchez bluff. In November, 1729, the fort and adjacent settlements were destroyed by the Natchez Indians and the inhabitants massacred; but a few months later a force of French and Indian allies drove out the Natchez and rebuilt the fort, which continued to be a French military and trading post until it passed into the hands of Great Britain by the treaty of 1763. It was now called Fort Panmure. In 1779 it was occupied by the Spaniards, who kept possession of it until March, 1798, although by the treaty of 1783 it was rightfully included in the territory of the United States. In April, 1798, the territory of Mississippi was created by act of congress, and Natchez became its capital. In 1820 the seat of government was removed to Jackson. In 1840 a large part of the city was laid in ruins by a tornado.

NATCHEZ, a tribe of Indians once residing in the western part of Mississippi, near the bank of the river of that name. Each of their villages had a sacred building, sometimes dignified by the title of temple, in which were placed the fetiches of the tribe and the bones of the dead; it also contained an altar upon which burned a perpetual fire. Near by was the hut of the chief, who derived his descent from the sun, and around it were the cabins of the people, over whom he ruled with almost absolute authority. Whenever a great chief died, a number of persons of the same age were strangled to accompany him in his journey to the other world. The nation was also divided into nobles and plebeians. Except in these particulars, and the peculiarity of their language, there was nothing to distinguish them from other tribes. Historical research fails to confirm the traditionary account of their greatness, the degree of their civilization, and their emigration from the south. The French in that region gradually encroached on them, and, irritated at last by their demands, the Natchez rose on the morning of Nov. 28, 1729, and murdered every Frenchman in the colony. But while rejoicing in their success, they were attacked, Jan. 28, 1730, by the Choctaws under Le Sueur, and a few days later Soubois at the head of the French troops completed the work of destruction. Part of the tribe escaped across the Mississippi river to the vicinity of Natchitoches, but their fortress could not long withstand the force sent against it. The chief and over 400 of the tribe were taken prisoners and sold as slaves, while some were incorporated with the Chickasaws and Muskogees, and others fled further west. Thus perished the nation of the Natchez, which is chiefly indebted to Châteaubriand's *Les Natchez* for the interest connected with its fate.

NATCHITOCHES, a N. W. parish of La., intersected by Red river and bounded E. by a branch, Saline bayou; area, 2,260 sq. m.; pop. in 1858, 18,793, of whom 7,670 were slaves. It has a level surface and fertile soil, especially near the rivers. The chief productions in 1850 were 15,574 bales of cotton and 394,011 bushels of Indian corn. It contained 4 saw mills and 1 tannery, and in 1858 13 churches. Red river is navigable for steamboats through the parish.—NATCHITOCHES, the capital, is situated on Red river at the foot of a bluff, about 500 m. by water from New Orleans; pop. in 1850, 1,261. It has an active commerce, and contains a U. S. land office.

NATIONAL LEGISLATIVE ASSEMBLY, the 2d of the great representative bodies which governed France during the revolution. It sat from Oct. 1, 1791, to Sept. 21, 1792, and was preceded by the constituent assembly and followed by the national convention. Its composition was completely democratic. It embraced no partisans of absolutism and privilege, but it had three parties, the right, centre, and left. The right were strict constitutionalists, led by Dumas, Ramond, Vaublanc, Beugnot, and others, and supported by the *bourgeoisie* and the club of the Feuillants. The left were the Girondists, who were disposed to defend the revolutionary movement in every way, unlike the right, who would only defend it by the laws; their principal orator was Brissot, and their main reliance the populace. The centre was attached to the new order of things, but inclined to moderation. It was soon, however, identified with the left, which obtained the control of the assembly, and in March, 1792, succeeded in forcing Louis XVI. to accept a Girondist ministry. They passed decrees against the emigrants and the priests who refused to take the oaths to the constitution, and obtained a declaration of war against Austria; but as Louis could not conquer his dislike to them, their ministry was dismissed in June and succeeded by one formed from the Feuillants. The populace sided with the Girondists; and on June 20 a mob of 30,000 persons, after presenting a threatening petition to the assembly and upbraiding it with the disasters of the republican arms, invaded the Tuileries and subjected the king to various insults. On July 5 the assembly declared the country in danger, the citizens armed themselves, a camp was formed at Soissons, and the revolutionary enthusiasm rose to the highest pitch. On Aug. 10 the mob attacked the Tuileries, and the memorable conflict ensued with the Swiss guard, who maintained a brave defence until Louis ordered them to cease firing, when the exasperated insurgents put them to the sword. In the mean time the king had gone to the legislative chamber, where the assembly resolved upon his suspension, and committed him to the Luxembourg, whence the commune transferred him to the Temple. Royalty was now virtually at an end, though the king's trial did not take place until the meeting of the national convention, which the assembly had resolved to call together. The Girondist ministry was restored, and the arbitrary period of the revolution was inaugurated by the supremacy of the commune over the representative assembly, and the massacre (Sept. 2, 3, and 4) of the prisoners in the Carmes, Abbaye, Conciergerie, Force, &c.

NATIONS, Law of. See Law of Nations.

NATRON. See Soda.

NATURAL BRIDGE. See Bridge, Natural.

NATURAL HISTORY, strictly speaking, is the history of universal nature or of all natural objects, their qualities and forces, their laws of existence, their origin (as far as possible), and their mutual relations to each other and to man. The study of the physical forces of nature, however, has been separated into distinct branches of science, under the names of natural philosophy, chemistry, astronomy, &c.; leaving for natural history proper the investigation of the structure, properties, and uses of the inanimate bodies called minerals, and of the various kinds of living things, both animal and vegetable, including their description, collection, preservation, determination, and arrangement in a natural series, and embracing as principal divisions zoology, botany, and mineralogy. For details on these divisions, see the articles Animal, Botany, Comparative Anatomy, Geology, Mineralogy, Physiology, Zoology, and the various animal and vegetable classes in their respective order. It is principally a science of observation, its phenomena being beyond the control of experiment; by observing the same objects in the various positions and relations in which they occur in nature, the naturalist by degrees arrives at a knowledge of the general laws which regulate the phenomena and conditions of existence, and will finally be able to make out a natural classification in zoology, botany, and mineralogy. At present natural history is little more than a grand catalogue of nature's works, with here and there a satisfactory division founded on permanent and essential characters; the present systems of classification are dictionaries, as it were, in which from the known properties of the objects we seek to discover their names, instead of being, as in ordinary lexicons, directed by the names to the properties. The aim of natural history is to take the earth when it was without form and void; to notice the consolidation of its crust, with its strata of igneous origin, its layers of deposition from ocean and fresh water, its volcanic outpourings, its upheaval of mountains, its subsidence of ocean floors, its modification by flood and glacier, and the other grand phenomena of physical geology; to people the waters, the land, and the air with diverse, strange, and often gigantic forms; to clothe its surface with the rich vegetation of the carboniferous and other floras; to watch the gradual introduction of mammals and the preparation of the earth for the appearance of man, the highest of created things on this planet; and to recognize in all this the carrying out of a premeditated plan. Whether this living nature has been the result of a succession of distinct creative acts, as has been until recently believed by most naturalists, or whether, as Darwin maintains, all living things have been evolved by natural causes from a few primordial types introduced by the single primary creative act, the grand panorama of animated nature in either case suggests to the mind the idea of a plan foreseen from the beginning, and executed determinately and intelligently. The study of natural history has engaged some of the most brilliant minds from the time of Aristotle to the present day; among others Pliny, Bacon, Linnæus, Buffon, Cuvier, Humboldt, and Agassiz. It has now assumed a place in our courses of instruction, and its teachings have important relations not only to the intellectual, but to the moral, æsthetic, and material interests of a community. Its successful cultivation requires a knowledge of mathematics, chemistry, optics, and other divisions of physics, and the higher departments enter boldly the realm of metaphysics; indeed, there is hardly a branch of human knowledge which will not find occasion for its employment in the pursuit of natural history. Its objects are infinitely diversified, and their number inexhaustible; no one need fear lest he meet with no portion of its broad domain uncultivated, for the field is immense and the laborers comparatively few; the objects are generally beautiful, and their interesting relations always present, ever increasing, and never wearisome and unprofitable. The descriptions of nature sparkle like gems in the languages of all nations, in poetry sacred and profane, ancient and modern; the most beautiful and instructive teachings of the Bible, perceptible even to childish comprehension, are illustrated by reference to the phenomena of nature. Beauty of form, proportion, and color, grace of movement, the sweetest sounds, the most delicious odors and savors, the most enchanting landscapes, and whatever is beautiful in the world about us, can only be known in perfection in the works of nature; painting, sculpture, architecture, and domestic adornment borrow their choicest ornaments from nature's portfolio, and are successful only so far as they imitate her beauty. The importance of the study of natural history in a utilitarian point of view, especially of the departments of mineralogy and geology, can hardly be overestimated in a country which contains such vast supplies of coal, iron, copper, lead, silver, gold, salt, coal oil, and other mineral resources as America; not only that they may be obtained in the most economical manner where they exist, but to prevent the useless outlay of capital where, according to well ascertained laws, they should not be looked for. In agriculture, engineering, draining, the sinking of wells, the introduction of new plants and animals useful in the domestic and ornamental arts, and other plans and processes upon which the prosperity, healthfulness, and even the settlement of large tracts of country depend, indispensable aid is derived from natural history. Agriculture is admitted to be the great and unfailing source of national wealth, and has been defined as "natural history applied; geology, botany, and zoology are its basis, and in proportion as these are understood, will there be success."

NATURAL PHILOSOPHY, a name now very generally given to that familiar aggregation of at least 10 separate branches of natural science, the common characteristic of which is that they treat of the properties, and the laws of the phenomena, of bodies considered in the mass, or as bodies and not as substances. Chemistry, on the other hand, considers bodies as substances, or in reference to their nature and composition. The term is in itself vague and ill-chosen; but its objects and limits are perfectly defined. It evidently originated in the modern dividing into distinct sciences of a body of knowledge, most of which, except the mathematics, at one time passed under the name of philosophy. It was at first the name of the science of the material universe, as distinguished from mental science, or metaphysics. More recently, the separation of the science of organized from that of unorganized matter has taken from it the subject of physiology. Excluding, further, chemistry, and the derivative sciences, as geology, &c., that which remains, and which is now understood as coming under the term natural philosophy, is the coördination of two general subjects, mechanics and physics. For the three branches of the former of these, and its relations to other sciences, see Mechanics. The recognized direct branches of physics are 7: somatology, treating of the properties and strictly molecular phenomena of bodies, acoustics, optics, magnetism, electricity, thermotics, or heat, and meteorology. Mechanics includes the cases of the action of forces on masses, from without them; physics, those of the action on masses of forces which are molecular, or which modify the physical condition of the bodies themselves. Thus, all these 10 branches of science have to do with entities of two sorts: material masses (without reference either to composition or to life), and forces. A material mass is that which has extension, impenetrability, and inertia, and hence also ponderability. A force is any energy or cause capable of moving or in any way changing such material mass. Thus, in a true philosophy, the old definitions of masses and agents, as being ponderable and imponderable matters, are abandoned. Imponderables are mere negations. But all observation shows that energies or forces are coëxtensive with material masses; and that neither can nor does, in the universe as revealed through our senses, ever exist apart from the presence of the other. Faraday has recently given the key to the most exact physical conception now existing on this point, when he treats of the "forces in matter." These forces, it will readily be seen, are all susceptible of being grouped under 4 species—the mechanical, physical, chemical, and vital. Phenomena due to the first two classes belong to natural philosophy. The recognized primitive physical forces are those of molecular repulsion, cohesion, gravitation, light, actinism, magnetic and electrical forces, and heat. From the first two of these, modified by affinity, result adhesion, capillary attraction, diffusion, and osmose. Physical as well as mechanical phenomena and laws run through and help to constitute astronomy, the various sciences relating to the earth, physiology, &c. The several departments of natural philosophy, and most of the separate physical agencies, will be found treated under the appropriate titles.

NATURALIZATION, the act of investing an alien with the rights and privileges of a native-born citizen or subject. It is of two kinds, collective and personal. A collective naturalization takes place when a country or state is incorporated in another country by gift, cession, or conquest. Thus, when England and Scotland were formed into one kingdom in the reign of Queen Anne, it was declared by the 4th section of the act of union that subjects of the United Kingdom possessed thereafter all the rights, privileges, and advantages enjoyed by the subjects of either kingdom; and when Louisiana was ceded by France to the United States in 1803, it was provided by the 3d article of the treaty that its inhabitants should be entitled to all the rights and privileges of citizens of the United States; and a similar effect took place when the republic of Texas was annexed to and formed into one of the states of the American Union. There have been instances, moreover, where nations have conferred generally upon the subjects of other nations all the rights enjoyed by their own subjects. Such a privilege was conceded by France to Spain by the Bourbon family compact of 1761; and formerly in France the Dutch and Swiss had by treaty stipulations the rights of natives. Personal naturalization is where the privileges of a subject or citizen are conferred upon an individual by the license or letters patent of a sovereign or the act of a legislative body, or are obtained by the individual himself under a general law upon his complying with certain conditions prescribed by the law.—The practice of naturalizing foreigners existed among the states of antiquity, and is found in the rudest forms of human society. The North American Indians frequently adopted Europeans, and more frequently members of other tribes taken in war. Carver, the traveller, while dwelling with the Naudowassies in 1766, was admitted a member of the tribe, and elevated to the rank of chief. In Athens, by the laws of Solon, none but those who were banished from their country for ever, and had taken up their permanent abode with their families there with the design of practising a trade or profession, could be enrolled on the list of citizens. Afterward, however, citizenship was conferred upon foreigners eminent for their virtue or talents, but was deemed so great a distinction that the proposal had to be canvassed at two assemblies of the people. If approved of at the first, it had to be ratified at the second by a vote of at least 6,000 citizens. The voting was by balloting with pebbles at the close of the assembly, and if favorable the name was inscribed upon the register of the tribes, and the cause for which the privilege was conferred was specified in a decree, which any citizen was at liberty to impugn if insufficient. Sometimes the right was granted to the inhabitants collectively of another state, by which all who crossed over into Attica became thereupon citizens. This naturalization conferred every civil and political privilege except that of holding the office of archon or priest, and in the early stages of the republic was but rarely granted even to requite the most signal services, as it was esteemed the most splendid distinction which the state could bestow, and one which the greatest merit could scarcely expect to receive. At a later period, however, it was more common, and Isocrates laments the facility with which the state threw away its nobility upon strangers. When the number of citizens had greatly diminished by war, the loss was supplied by the naturalization of aliens, large bodies of whom resided at Athens engaged in commercial and mechanical pursuits. This was done after the battle of Chæronea; and when the disastrous defeat at Syracuse had nearly depopulated the state, the deficiency of citizens was made up by an extensive naturalization of foreigners. This was done by the vote of the inhabitants of a deme (township or ward) at its public meetings, after which the name was inscribed upon the lexiarchic register or roll of the qualified citizens of the deme kept by the demarch. Perhaps no state in proportion to its population ever naturalized so many aliens.—In Rome, during the republic, citizenship was conferred by a vote of the senate upon aliens who had rendered eminent services to the state, of which several striking examples are mentioned by the Roman historians. After the social or Marsic war, 90 B. C., the right was extended to all the people of Italy. Under the emperors, down to the reign of Antoninus (Caracalla), foreigners petitioning for citizenship were naturalized by an imperial decree; but under a constitution promulgated by Antoninus all the free inhabitants of the various provinces comprising the empire became thereafter Roman citizens; and as that empire embraced the civilized world, there could be few or no instances thereafter of personal naturalization. —The mode of obtaining naturalization, and the conditions upon which it will be granted, differ in different countries. In the United States the power of conferring it is exclusively vested in the confederated sovereignty of the states. This power has been sometimes exercised by a collective naturalization, in cases where foreign territory has been acquired and in respect to certain Indian tribes; but the mode in which individuals obtain it on their own application is regulated by acts of congress. The policy of this country upon the subject, which is characterized by a desire to admit all foreigners of good character to a full participation in all the rights enjoyed by our own citizens, after a period of probation sufficiently long to enable them to become acquainted with the nature of our institutions, is to be traced back to an early period of our colonial history. It was not derived, like many of our laws, from the enactments or the example of Great Britain, but grew out of the necessities attendant upon the settlement of a new country. At the period when the colonies were founded, the policy of England for more than a century had been hostile to conferring political privileges upon foreigners; and so illiberal was its course in this respect through the whole period of our colonial history, that one of the acts of tyranny charged upon George III. in the declaration of independence was, that he had endeavored to prevent the population of the states by obstructing the laws for the naturalization of foreigners, and by refusing to pass others to encourage their migration hither. The only mode by which a foreigner in England could obtain naturalization investing him with all the rights of a subject was by act of parliament. He could obtain letters of denization by the king's special license, which was granted with certain restrictions. In the 7th year of the reign of Queen Anne an act was passed for naturalizing foreign Protestants, by which persons of this class could be admitted to all the rights of subjects upon receiving the sacrament and taking the oaths of abjuration and allegiance; but it was repealed in the short space of 3 years. The rights of foreigners settled in the colonies were in a very precarious state. By the law of England they could neither hold nor transmit real property, nor exercise any political rights; and by the navigation act, unless they were naturalized or made free denizens by the king's letters patent, they were forbidden to exercise in any of the colonies the occupation of a merchant or a factor. To remedy this state of things and encourage immigration, the colonial legislatures exercised the right of passing naturalization laws. Maryland was the first colony that took this course. In 1666 she enacted a law for the naturalization of the Dutch from Cape Henlopen, and the French Protestant refugees who had settled in the colony, and continued to pass laws for the naturalization of aliens to the time of the revolution. In 1671, in the reign of Charles II., the colony of Virginia passed an act for the naturalization of any one desiring to make that commonwealth his constant residence, who might apply by petition to the general assembly; the act commenced with the declaration that "nothing could tend more to the advancement of a new plantation nor add more to the glory of a prince than being the gratuitous master of many subjects, nor any better way of producing that effect than the inviting the people of other nations to reside among them, and by a communication of privileges." Five acts were afterward passed, naturalizing a number of aliens who had petitioned for the privilege. In 1680 the governor was authorized to grant letters of naturalization to any foreigner settled in the colony upon his taking the oath of allegiance. In 1705 a law was passed, adding the test oath to the oath of allegiance to secure the Protestant succession, and in 1788 another act naturalizing any alien who might settle upon the Roanoke. In South Carolina, in 1690, the proprietors proposed to admit the French Protestants who had settled in the province to all the privileges enjoyed by others. The measure, however, was strenuously opposed by the native and English inhabitants, who insisted that it was contrary to the law of England to admit aliens to the rights of subjects, as no power but the British parliament could remove their legal disability. But the mild and patient demeanor of the new settlers gradually overcame all national antipathies, and awakened such general respect and esteem that, in 1698, the legislature of the colony with great unanimity passed a naturalization act, without even affecting to be disturbed by any scruples respecting the exclusive power of the British parliament. The colony of New York passed an act in 1688, declaring that all actual inhabitants of the province professing Christianity, of whatever foreign nation, should be entitled to all the privileges of natural-born subjects upon taking the oath of allegiance. Delaware in 1700 passed an act empowering the governor to declare any alien, previously settled or thereafter coming to settle in the province, naturalized upon taking an oath to be true and faithful to the king and to the governor of the province, and declaring that all Swedes, Dutch, and other foreigners settled in the colony before its acquisition by the English were to be deemed fully and completely naturalized. Pennsylvania also passed a naturalization law in the same year, and South Carolina in 1696. These laws were not favorably regarded in England. They were looked upon as encroachments upon the royal prerogative or the rights of parliament; and even in the colonies the more strenuous loyalists denounced them as disregarding the navigation acts, as tending to an undue increase of the inhabitants, thereby creating formidable antagonists to English industry and nursing a disposition to rebellion. In 1715 the colony of New York passed an act for the naturalization of all foreign Protestants then inhabiting the province. The act was referred by the board of trade to Northey, the English attorney-general, who condemned this mode of naturalizing "in the lump," but recognized the right of the legislature to naturalize particular aliens by name, after inquiring into each case specially; and thereafter down to 1778 some 14 acts were passed, by which an immense number of aliens were naturalized by name. In 1740 an act was passed by the British parliament for the naturalization of foreign Protestants settled in the colonies of America. It required a residence there of 7 years without having been absent at any time for more than two months, and all naturalized under it, except Quakers or Jews, had first to receive the sacrament of the Lord's supper in some Protestant communion. This was undoubtedly designed to supersede colonial legislation, but it did not have that effect. The long period of residence required was very objectionable in a new country, and the Catholics who had settled extensively in Maryland were excluded from its provisions. The colonial legislatures still continued to pass naturalization laws, and the difficulties growing out of the subject continued to increase until the separation of the two countries. During the revolution and until the adoption of the federal constitution, the power of naturalizing aliens was exercised by the states. The constitution of the state of New York, adopted in 1777, declared that it should be in the discretion of the legislature to naturalize all such persons and in such manner as they should think proper. The legislature enacted no general law, but continued to pass acts for the naturalization of persons by name down to the year 1790. Application was made by petition, and the names of all the petitioners whose applications were granted were included in one general act passed toward the close of each session. After the breaking out of the revolution, and especially after the independence of the United States was recognized by Great Britain, it became necessary both here and in England to determine who of those born in the colonies were to be deemed aliens. It was decided in the English courts that all persons of this class, adhering to the American government during the war and until after the treaty of 1788, ceased thereafter to be subjects of Great Britain, and were aliens; but in the American tribunals it was held that the colonies acquired all the rights and powers of sovereign states when they declared their independence on July 4, 1776, and that the people of the respective states ceased upon that day to be subjects of Great Britain, and became members of the new social compact then formed; that none were excepted unless, within a reasonable time after that event, they placed themselves under the protection and power of the government of

Great Britain in such a way as to indicate an election on their part to remain in allegiance to that country. It was conceded by the tribunals of both countries that all persons born in the colonies had a right upon the happening of such an event as the revolution to elect to which government they would adhere; the point upon which they differed being that the English courts considered the date of the treaty of 1783 as the period when we ceased to be subjects, while our courts adopted as the era the day of the declaration of independence. In some of the states laws were passed soon after the declaration of independence, setting forth that all abiding in the state after that event, or after a certain specified period, and deriving protection from the laws of the state, owed allegiance to it. This was the case in New York, Massachusetts, Pennsylvania, and New Jersey. In other states no special laws were passed, but each case was left to be decided upon its own circumstances according to the voluntary acts and conduct of the party. It was also held that persons born in Great Britain who adhered to the American cause until the close of the war, became thereby American citizens; and the natives of the colonies absent and living under the protection of Great Britain at the declaration of independence, but who returned to the country before the treaty of 1783, and continued here afterward, were held to be citizens. In Virginia it was declared by an act of the legislature that natives of any state who had borne arms against the United States during the war had ceased to be citizens of that commonwealth. The question of the alienage or citizenship of those born in the country before or during the war became a very important one, as it involved the right of succession to landed property, and was a fruitful source of litigation until ultimately settled by the tribunals of both countries. In the articles of confederation there was a clause declaring that the free inhabitants of each state should be entitled to all the privileges and immunities of free citizens in the several states; and as each state had the power of determining for itself upon what condition aliens should be admitted, and as in some of the states higher qualifications were required by law than in others, it was felt that great inconveniences would arise in the practical operation of this clause. A single state had the power of forcing into another state any alien upon whom it might confer the right of citizenship, though declared to be disqualified by the laws of that state. One state had but to naturalize him, and then, by the effect of the provision in the articles of confederation, he became a citizen in every other, thereby making the law of one state paramount to that of the rest. No actual difficulty occurred, but the most serious embarrassments were likely to arise at any moment. This inevitable conflict of jurisdictions was pointed out by Hamilton in the "Federalist," and both he and Madison strenuously advocated the necessity of a uniform rule of naturalization for all the states. Accordingly, when the federal constitution was framed in 1787, a provision was inserted without debate conferring upon congress the power of establishing one uniform rule of naturalization throughout the United States; and at the second session of the first congress after the adoption of the constitution, on March 26, 1790, an act of the most liberal character was passed, authorizing the naturalization of any free white alien after a residence of two years under the jurisdiction of the United States and of one year in the state where he applied for admission; and from that time to the year 1854 some 15 acts have been passed upon the subject. In 1795 the period of residence was increased to 5 years, and a previous declaration upon oath by the alien of his intention to become a citizen was required to be made before a court of one of the states at least 3 years before the applicant's admission. In 1798 the residence was increased to 14 years, with 5 years' previous declaration of intention. In 1802 the residence was reduced again to 5 years and the declaration of intention to 3 years; and in 1824 the declaration of intention was further reduced to 2 years. Though the power to establish a uniform rule of naturalization had been conferred by the constitution upon congress, and congress had exercised it by the enactment of a general law, still it was supposed in some of the states that they had concurrent jurisdiction. It was decided in Pennsylvania that the states still had a concurrent power of naturalizing if they did not contravene the legislation of congress. In 1790 the legislature of Virginia passed a naturalization law, differing from that of the United States. It conferred the right of citizenship upon all who came to the state with intent to reside, upon taking an oath of fidelity to that commonwealth; and provided further that any citizen might expatriate himself and become absolved from his obligations, upon making a public declaration to that effect before a court of justice and departing from the state. But it was held by the supreme court of the United States in 1817 that the power to naturalize was vested exclusively in congress. The soundness of this decision was much questioned at the time, but it is now universally acknowledged to be correct. But though no state can confer upon any alien all the rights and privileges of a citizen of the United States, it may grant him any civil or political privileges within its own jurisdiction not inconsistent with the laws of the United States; and in many, especially in the western states, aliens are allowed to hold land, to exercise the elective franchise, and to enjoy many of the privileges of citizens, a liberal policy which has contributed greatly to the rapid settlement of these states, and to their increase in wealth and prosperity. —The existing laws of the United States upon the subject of naturalization are to be gathered from many statutes, some of them relating to other subjects; and the want of one general act, in which the whole law should be embodied and clearly expressed, has been very much felt. The qualifications requisite, and the mode of obtaining naturalization, are at present (1860) as follows. The applicant must be a free white person, and must have resided in the United States for the continued term of 5 years next preceding his admission, and one year at least within the state or territory where the court is held that admits him. Two years at least before his admission he must declare on oath or affirmation, before a court of record having common law jurisdiction and a seal and clerk, or before a circuit or district court of the United States, or before a clerk of either of the said courts, that it is *bona fide* his intention to become a citizen, and to renounce for ever all allegiance and fidelity to any foreign prince, potentate, state, or sovereignty, and particularly by name the prince, potentate, state, or sovereignty of which he is at the time a citizen or subject. This declaration is recorded by the clerk, and a certificate under the seal of the court and signed by the clerk that he has made such a declaration is given him, which is received thereafter as evidence of the fact. If the applicant was a minor under the age of 18 when he came to the country, his previous declaration of intention is dispensed with, and he is entitled to be admitted after he has arrived at the age of 21 years, if he has resided 5 years in the United States, including the 3 years of his minority, and has so continued to reside up to the time when he makes his application, upon complying with the law in other respects. There is some obscurity in respect to the latter provision in the law. Some have thought that the 3 years of minority from 18 to 21 is all that can be allowed as a part of the 5 years' residence demanded by the act, and that one naturalized as a minor was not entitled to be admitted until he had arrived at the age of 23; but it has been decided in the New York common pleas (all the judges concurring) that he is entitled to be admitted at 21, if he had resided here since he was 15; that all that the statute requires is, that he must in every case have resided here between the ages of 18 and 21, and if he has done that and also resided here 2 years before that period began, it is a residence of 5 years within the meaning of the act, and he is entitled to admission at 21. When the applicant has completed the necessary residence, he must prove the fact before one of the courts previously named by other testimony than his own oath. One witness, if he knows the fact, is sufficient. If entitled to admission without a previous declaration of intention, he must declare upon oath and prove to the satisfaction of the court that, for the 3 years next preceding his application, it was *bona fide* his intention to become a citizen; and every applicant must prove (which may be done by his own oath, unless the court should require other testimony) that he has behaved during the period of his residence as a man of good moral character, attached to the principles of the constitution of the United States, and well disposed to the good order and happiness of the same. The mode of admission is as follows. The applicant goes to the clerk of the court and exhibits the certificate of his having declared his intention. The clerk then prepares a written deposition for the witness, setting forth his knowledge of the applicant's residence and of his good character, and another for the applicant, declaring that he renounces all allegiance to every foreign power, and particularly that of which he is a citizen or subject, and, if he has borne any title of nobility, that he renounces it, and that he will support the constitution of the United States. The parties are then taken before the judge, who examines each of them under oath; and if he is satisfied that the applicant has resided in the country for the requisite period, and is a man of good character, he makes an order in writing for his admission. The depositions are then subscribed by the parties and publicly sworn to in court in the presence of the judge; and the certificate of the declaration of intention, the depositions, and the order of the judge are filed, and constitute the record of the proceeding. A final certificate under the seal of the court, signed by the clerk, is then given to the applicant, declaring that he has complied with all the requisites of the law, and has been duly admitted a citizen, which certificate is conclusive evidence thereafter of the fact. In the case of a minor the previous declaration is dispensed with, but in all other respects the course of procedure is the same. The record of naturalization, if regular upon its face, is conclusive as to the naturalization of the alien, and cannot be contradicted by extrinsic evidence. It may be set aside, however, if fraudulently obtained, by the court where the alien was naturalized. An alien who resided in the United States before June 18, 1812, and has continued so to reside, may be admitted without any previous declaration of intention; but in that case he must prove that he resided here before that period, and continued so to reside, and by the oath of two witnesses, who must be citizens, that he has resided within the limits and jurisdiction of the United States for 5 years immediately preceding the time of his application; and the place or places where he resided during these 5 years, and the names of his witnesses, must be set forth in the records of the court. Similar provisions respecting aliens who resided here at an earlier period were enacted, but they have now become obsolete by lapse of time.—A child born out of the United States is a citizen if the father was one at the time of the birth of the child, but the right will not descend to one whose father has never resided in the United States; and the minor children of persons naturalized, if the children are then dwelling in the United States, become citizens by the naturalization of the parent. It was formerly questioned whether this latter provision applied except to the children of parents naturalized before the passage of the act in 1802. Chancellor Kent, in his "Commentaries," inclined to the opinion that the act was prospective, and was designed to embrace the children of persons who should thereafter be naturalized, and opinions to the same effect were expressed by many eminent jurists. But the point came up for decision in the court of chancery of the state of New York in 1840, in the case of children who were minors, living with their father in this country, when the father was naturalized in 1830, and whose right to succeed to his estate was denied upon the assumption that they were aliens. Chancellor Walworth decided that they were not aliens, but became citizens in 1830 by the naturalization of their father. After an elaborate examination of the legislation of congress, he held that this provision in the act of 1802 was prospective, so as to embrace the children of aliens naturalized after the passage of the act, as well as the children of those who were naturalized before. A decision to the same general effect was rendered by Judge Daly in the New York common pleas in 1847. In 1850 the point was again raised in Arkansas in a case of much public interest. The attorney-general of the state brought a writ of *quo warranto* to test the right of one Peck to exercise the office of sheriff to which he had been elected, upon the ground that he was not a citizen. Peck relied simply upon the fact that his father was naturalized in New York when he was 11 years of age, and that he was at that time living with his father. The supreme court, after a very careful examination of the question and of the authorities, decided unanimously that Peck was a citizen. Another important question under this provision, is whether both parents should be naturalized to confer the right upon children. The importance of this question is greatly lessened in all cases of naturalization after Feb. 10, 1854, as congress on that day passed an act declaring that any woman entitled to be naturalized, then married or who should thereafter be married to a citizen, should be deemed and taken to be one; but before that time the American courts had repeatedly held that a wife who was an alien did not become a citizen by the naturalization of her husband. In the case before Chancellor Walworth, and in the one in Arkansas, the naturalization of the father was all that was shown. The attention of the court, however, was not called to the point; but in several other cases where it has been raised incidentally, very eminent judges have declared that the naturalization of the father is all that is required, and Chancellor Kent in his "Commentaries" has expressed himself to the same effect. These two questions are of great practical importance, as vast numbers of persons since the enactment of this provision have inherited, purchased, and transmitted real property upon the assumption that they were citizens by the naturalization of their fathers, whose rights and the rights which others have derived from them would be disturbed if a different construction were now given to this provision; and although these two questions have not been decided by the highest authority in this country, the supreme court of the United States, it may be assumed, from the decisions that have been rendered, from the concurring opinions of many eminent jurists, and from reasons of public policy, that they are now settled, and the construction above stated universally acquiesced in. If an alien who has declared his intention die before he is naturalized, his widow and children may become citizens by simply taking the oath required of all naturalized citizens to support the constitution of the United States, and to renounce all previous allegiance. In this case the period of residence of the widow and children is immaterial, nor is any distinction made between minor children and adults.—In certain cases aliens are disqualified from becoming citizens. No alien can be admitted while his country is at war with the United States, nor can one be admitted who was legally convicted of having joined the British army during the American revolution, or who was proscribed by any state before 1802, unless with the consent of the state.—By the terms of the law also none but "free white" persons can be naturalized. This is supposed to exclude all that can be denominated colored races, the copper-colored natives of America or Indians, the African races, and the yellow races of Asia. In the celebrated Dred Scott case, decided by the supreme court of the United States in 1856, it was declared that the American Indians were not citizens, but independent tribes living under the protection of the United States; that the Africans imported into this country and their descendants were not the people by whom the government of the United States was established, but a separate and subjugated race dwelling here, who were never intended to be embraced under the denomination of citizens; and that when the right of naturalization was surrendered by the states and confided to the federal government, it was supposed and meant to be confined to persons born in a foreign country under another government, and was not intended as a power to raise to the rank of citizens inferior races born here, such as Indians, negroes, and mulattoes. Upon this latter point the judges differed in opinion, but all of them appear to have conceded that under the existing act of congress none of this class can be naturalized. Indians, however, have been admitted to the rights of citizenship by special treaties. This was done by art. 14 of the treaty with the Choctaws of Sept. 27, 1830, and by art. 12 of that with the Cherokees of May 23, 1836; and in the treaties by which Louisiana, Florida, and California were acquired, members of the mixed Indian and African races became citizens. In the case of the mixed races a delicate and very difficult question arises as to the degree of mixture or shade of color that will disqualify. In several of the states one having African blood in the degree of one fourth is not regarded as a white person. This appears to be the case in Virginia, Indiana, North Carolina, and Kentucky. In Alabama, persons descended from negro or Indian ancestors to the fourth generation are not considered as white, even though one ancestor in each generation may have been white; but it has been held in that state that the offspring of a white mother by a mulatto father is neither a negro nor a mulatto. In Georgia and Louisiana, if the admixture does not exceed the proportion of one eighth, the person is white; and this was the rule in the *code noire* of France. In South Carolina, a distinct and visible admixture of negro blood is sufficient to disqualify, and this is to be determined upon the evidence of features, complexion, and parentage. In Ohio, persons nearer white than black, that is, all having more than one half white blood, are deemed white. No general rule therefore exists on this subject; and a man either one eighth or one fourth of African blood, who in South Carolina and Georgia would be deemed a mulatto, might be regarded by the courts of Ohio as of the white race, and entitled to be naturalized. In Wisconsin, civilized persons of Indian descent, not members of any tribe, enjoy the same political privileges as white citizens; and in the courts of California it has been held that a Chinese is not a white person within the meaning of the act of congress, and cannot be naturalized.—The residence required by the naturalization laws is a permanent abode in the country; and when that is established or begun, it will not be affected by a temporary absence upon business or pleasure, if the intention to keep up the residence here and return has always existed, and no residence has been established elsewhere. Formerly the words of the statute were: "without being at any time during the said 5 years out of the territory of the United States;" but this very stringent and absurd provision was repealed in 1848. A man's residence may be defined to be the place where he abides with his family, or abides himself, making it the chief seat of his affairs and interests. In the case of seamen, they are assumed to have complied with the conditions of the law if they have sailed exclusively in vessels belonging to the United States for the continuous period of 5 years, and have continuously shipped at least for the period of one year out of some port of the state where the court is situated in which they are naturalized. This is the established practice of the courts of the city of New York, where large numbers of seamen are naturalized annually.—On the question of the right of a naturalized citizen to expatriate himself and renounce his allegiance to this country, there is diversity of opinion. The more recent opinions are, that he may if he changes his domicile. (See Alien.) It was held in New York that he could not expatriate himself if he continued to reside in this country. The case was that of an Englishman naturalized here, and who, being afterward appointed consul for Spain for the port of New York, took an oath of allegiance to the king of Spain and claimed to be a Spanish subject. It was held that he remained subject to the duties and obligations of a citizen of the United States.—No statistics are preserved of the number of persons naturalized annually in the United States. Some idea of the extent to which the right has been conferred, may be formed from the number of persons naturalized in the city of New York. During 10 years, from 1850 to 1860, the number admitted in the superior court and court of common pleas, the two tribunals where nearly all applications are made, has been over 60,000. The largest numbers have been admitted in the years of the presidential election. The statistics of the court of common pleas for the last 5 years are as follows: 1855, 3,200; 1856 (presidential year), 6,684; 1857, 5,580; 1858, 3,110; 1859, 2,880.—In Great Britain, prior to 1844, naturalization could be effected only by act of parliament. Originally it conferred all the rights of a natural-born subject, but by an act dictated by the jealous policy of the government upon the accession of the house of Orange, passed in 1701, it was declared that no one, though naturalized, should be of the privy council or a member of parliament, or hold any office civil or military, or be allowed to receive any grant of land from the crown. It was of course within the power of parliament to grant these privileges specifically in any act, but it was declared that no bill should be received in either house without this disabling clause. As before stated, the king might grant letters of denization conferring certain limited rights, in the exercise of his royal prerogative. This practice existed as early as the reign of Henry II. That monarch granted charters of denization to particular persons of Irish descent, conferring upon them and their posterity all the privileges of English subjects. A great number of these charters were granted to this class of persons afterward, and appear to have been very easily obtained. The Norman rule had so paralyzed the industry of England, that Edward III., in the beginning of the 14th century, encouraged German and Flemish artisans to settle in the country. Companies consisting for some time wholly of foreigners, who were known as the merchants of the staple, carried on the trade in wool; and Italian companies, known as the Lombards, managed and monopolized the trade of the East. To all of this class special privileges were granted, either by charter or by letter of denization, which, it would seem from the preamble of an act passed in the reign of

Henry VIII., made them as free as Englishmen born within the king's dominion. Though contributing greatly to the wealth and prosperity of the country, they were always regarded by the body of the people with great jealousy; and the popular clamor against them and their privileges reached in the reign of Henry VIII. to such a height as to break out in formidable riots, and cause a total change of policy on the part of the government. Laws were enacted imposing restrictions and burdensome duties upon foreigners. In the reign of James I. there was a great influx of foreigners from the Low Countries, and the king was urgently petitioned to adopt exclusive measures against them. He acquiesced to some extent; but so far from sympathizing with the petitioners, he curtly referred to the industrious habits of the strangers as something from which his people might take example. In the reign of Charles II. the policy of the government became more liberal, and an act was passed inviting aliens to settle in the country, and engage in certain trades, with an offer of the privileges of native-born subjects; and in the reign of Anne, as before remarked, an act was passed for the naturalization of all foreign Protestants, commencing with the preamble: "Whereas the increase of a people is a means of advancing the wealth and strength of a nation;" but the clamor against it was so great, especially on the part of the city of London, that it was repealed in 1711 by an act with a counter preamble, declaring the inconveniences and mischiefs it had produced to the discouragement of the natural-born subjects of the kingdom, and to the detriment of its trade and wealth. The practice of granting letters of denization however continued during all this period, but the privileges were more limited. A denizen was, in fact, in a kind of middle state between an alien and a naturalized subject. He could not take lands by inheritance, nor enjoy any immunity in foreign trade, until after he had resided 7 years in Great Britain; and was subject to the same restrictions as to holding office, &c., as naturalized subjects. An exception was made in the reign of George II. in favor of seamen. Any foreign seaman serving thereafter for two years, in time of war, in a British ship, became thereby a naturalized subject. In this state the law remained until the reign of Victoria. Great desire having been expressed for more liberal enactments, a law was passed in 1844, defining the privileges of aliens upon some questionable points, and providing for the naturalization of all aliens residing in or coming to Great Britain with intent to settle. By the provisions of this act any alien may address a petition to the secretary of state for the home department, stating his age, profession, or occupation, the period of his residence, and the ground upon which he desires to be naturalized. The secretary of state is required to investigate the circumstances of each case, to receive all such evidence as may be offered, or as he may desire, and if he think it fit he may grant the applicant a certificate admitting him to all the rights and capacities of a natural-born subject, except the capacity of being a member of the privy council or of parliament, upon his taking the requisite oaths; and the secretary may add any other restrictions he thinks proper. The applicant must then take the oaths of abjuration, supremacy, and allegiance, before one of the judges of the higher courts or before a master in chancery, and within 60 days thereafter the certificate must be enrolled in the court of chancery. The original certificate, after being enrolled, is duly certified by an officer of the court and returned to the applicant as the evidence of his naturalization. Before the act of 1844 the number of persons naturalized was about 8, and the number who obtained letters of denization about 25 annually. In 1847 a law was passed declaring that the act should not apply to any of the British colonies, and expressly recognizing the right of the colonial legislatures to enact their own laws upon the subject. The act of 1844 was also modified in 1858, so as to enable Jews to take the oath; and an act was passed in 1848, empowering the secretary of state or the lord lieutenant of Ireland to order any alien not a resident for three years to quit the nation, but it was of temporary duration.—The policy of France upon this subject has been restrictive, which may be traced to the unfavorable influence exercised by foreigners at various periods of her history. Many Italian adventurers were naturalized in the reign of Charles VIII., but their characters were so worthless that their certificates of naturalization were annulled by his successor Louis XII. in 1499. At the time of the league great numbers of naturalized Spaniards and Italians mingled in public affairs, and gave such offence, especially as a branch of the clergy, that a law was passed in 1579 prohibiting foreigners from holding ecclesiastical offices. Their participation in the civil administration of the state reached its climax when the notorious Italian Concini, the *protégé* of Maria de' Medici, became a marshal without ever having drawn a sword, and minister, ruling with capricious insolence a people of whose laws he was wholly ignorant. After his tragical end an act was passed in 1629, debarring foreigners from holding a seat in the administration; and the mischief wrought by Mazarin and his foreign camarilla led to a still more stringent law in 1651. No material change took place until the revolution, when in 1791 the legislative body was authorized to naturalize foreigners upon the condition that they fixed their residence in the country, and took an oath of allegiance. In 1793 a law was enacted admitting all to the rights of French citizens domiciled in the country one year, over the age of 21, who supported themselves by their labor, or acquired property, or who should marry a native, or adopt a French infant, or support an aged person, and all others whom the legislative body regarded as meriting well of humanity. In 1798 a residence of 7 consecutive years was made necessary; and as the country gravitated toward monarchy in 1800, the residence was extended to 10 consecutive years. In 1803 the residence was reduced to one year, if the alien had rendered important service to the state by his talents, inventions, useful industry, or by forming large establishments therein. In 1808 it was provided that naturalization upon the ground of important services to the state, thereafter known as *la grande naturalisation*, should be conferred by a decree ratified by the council of state. In 1814 it was declared that no naturalized subject should be eligible to a seat in the legislative chambers unless he had received the grand naturalization. After the revolution of 1848, the term of residence was reduced to 5 years; but in the following year, 1849, the previous legislation was reestablished. As the law now stands, the grand naturalization after a residence of a year, in the cases already mentioned, is conferred by a decree of the emperor, ratified by the senate and the *corps législatif*. In other cases the alien must be of the age of 21, must have resided in France for 10 consecutive years, and must have declared his intention of fixing his residence there. A child of foreigners born in France, or the child of French parents born abroad, may reclaim the rights of citizenship in a year after he arrives at his majority, if he resides in France and declares his intention of there fixing his domicile, or if, residing abroad, he makes a similar declaration and establishes himself in France within the year that he makes his declaration. A foreign woman marrying a native becomes a French subject, and a French woman marrying a foreigner follows the condition of her husband; but becoming a widow, she recovers her nationality if living in France, or if she returns to it with the authority of the emperor and declares her intention of fixing there her residence. A foreigner living in France enjoys the same civil rights that are accorded to Frenchmen in the country to which the foreigner belongs. Citizenship is lost by naturalization elsewhere, by accepting office under another government without the authority of the emperor, or by so establishing one's self abroad as to indicate an intention not to return; but dwelling abroad for commercial purposes does not have that effect. Citizenship may be recovered by renouncing the foreign office and domicile, on due application to the state, upon declaring an intention to fix a residence in France and renouncing all distinctions contrary to its laws. A difference is recognized since 1833 between letters of naturalization and letters of nationality, the first conferring a new right, the latter merely restoring a right that was lost or in abeyance. All Frenchmen, whether naturalized or holding office abroad with the consent of the emperor, who are taken bearing arms against France, suffer the penalty of death; it constitutes no exemption that they were serving in obedience to the laws of their adopted country. Not only in this provision, but upon naturalization of foreigners generally, the policy of the government is in practice very illiberal, and but few comparatively are naturalized.—In Belgium naturalization is granted by a legislative act. It is of two kinds, grand and ordinary. The first is conferred only where eminent services have been rendered to the state, and the person to whom it is granted is placed in every respect upon an equality with a native. The second naturalization, *ordinaire* or *petit*, admits to every privilege except the exercise of those political rights which are reserved for the grand naturalization. In contradistinction to France, the policy of the government on this subject is distinguished by great liberality. In Holland, by the fundamental law of 1848, a foreigner can be naturalized only by an act of the states-general, approved by the king. In neither Holland nor Belgium is any stated period of residence demanded, or any other special condition required, and citizenship in both may be lost for the same causes as in France, and restored in the same way.—In Sweden, by a law passed in 1858, an application must be made by petition to the king, accompanied by proof of the age of the petitioner, his religion, his native country, the time of his immigration, the places where he has resided in Sweden, and his general good conduct. He must be 21 years of age, of good character, a resident of Sweden for 3 years, must have the means of supporting himself, and must not be of the Roman Catholic religion. If he has been previously admitted into the service of the state, or is known as a man of more than ordinary ability in the arts or sciences, or in the industrial pursuits of agriculture or mining, or if for other reasons it is considered that his adoption as a Swedish subject would prove useful to the state, the 3 years' previous residence may be dispensed with. If all these conditions are duly proved to the satisfaction of the authority to whom his application may be referred by the king, he may be naturalized upon taking the oath of allegiance; and if a native of a country which does not admit a renunciation of allegiance, he must in taking the oath renounce in writing all rights and political privileges he possessed in his native country. In Norway naturalization is granted by the *storthing*, the national legislative assembly, in which this power is exclusively vested, the assent of the king in this case not being necessary.—In Denmark a petition must be addressed to the president of the *rigsraad*, the council of state under the constitution of 1857, with a certificate of two citizens that the petitioner has resided one year in the country. An act is then passed by the *rigsraad*, declaring that the petitioner may reside and trade in the kingdom with all the rights and subject to all the duties of a native-born subject. It must be approved by one of the ministers and receive the sanction of the king. The privilege is almost invariably granted as a matter of course whenever applied for. —In Russia naturalization is effected by taking an oath of allegiance to the emperor before an officer of the administrative department; but naturalized strangers may at any time renounce their naturalization and return to their country.—In the states of the Germanic confederation, there is a provision in the federal constitution of Vienna of 1815, by which the citizen of one German state is entitled to reside in another and do business, free of annoyances from the police or authorities, if he has ample means to live in his new residence, without becoming a burden upon his fellow citizens, and is a man of good character, against whom no criminal or civil proceeding is pending, which must be duly certified. In any one of the states he may be naturalized, as a general rule, if his own government has released him from his allegiance or allowed him to emigrate, if he has discharged all his obligations in his own state, such as paying his debts and fulfilling his military duty, and is of good character. The same conditions apply in the case of aliens from other countries, except that they are not required to show that they have fulfilled all their duties in their native country. Application must be made in writing to the council of the city or village where the applicant resides, showing that he comes within the above requirements. His petition is closely scrutinized, and if favorably regarded it is sent with the report of the council to the highest authority in the state, and a diploma is transmitted signed by the minister of the interior, and given to the petitioner upon the payment of a trifling charge. If the petition is unfavorably regarded by the council, it is sent back with notice that it is denied without assigning any grounds, but the reasons may be learned upon application. An appeal may be taken to the provincial government, but is of little value, as the decision of the local authorities is almost invariably affirmed. In Austria a foreigner acquires the rights of citizenship if employed as a public functionary, but not by mere admission into the military service, nor by receiving a title of distinction or honor, but is treated as a citizen if maintained by the government on account of military services. The right may be conferred by the superior authorities upon an individual after 10 years' residence without interruption, upon proof of the fact and upon taking the oath of allegiance. The authorities, however, may grant it before the expiration of that period upon proof of good moral character and of the applicant's ability to support himself; and foreigners acquire the rights of citizens by entering into business requiring a permanent residence. In the country the temporary possession of a farm, however, of a house or other real estate, or the mere establishment of a manufactory, or a commercial business, or a partnership, does not confer the right. Citizenship is forfeited by emigration. Marriage with an Austrian confers citizenship upon the wife. In Prussia, by a law of 1842, the superior administrative authorities are empowered to naturalize any stranger who satisfies them of his good conduct, certain exceptions being made with regard to Jews, minors, persons incapable of disposing of themselves, and subjects of other states of the Germanic confederation. As in Austria, citizenship is acquired by nomination to a public office, or by the marriage of a foreign woman with a Prussian, and lost by emigration or accepting office in foreign states. In Bavaria, by the law of 1818, citizenship is acquired by the marriage of a foreign woman with a Bavarian, by a domicile taken up by one who gives proof of his freedom from personal subjection to any foreign state, after a residence of 6 years, and by royal decree; and it is lost by citizenship in a foreign state without special permission, and by emigration. In Würtemberg it is obtained by appointment to office, or by acquiring landed property in or near the city or commune where the foreigner has, with the consent of the local authorities, established his residence. He can then apply to the government for the *Staats Bürgerrecht*, which confers all the privileges and subjects him to the obligations of a native. He may fill any office if he is of the Christian religion. Citizenship is lost by accepting office in a foreign state and by emigration. In Hanover the conditions are 5 years' residence in a commune with the approbation of the mayor or bailiff, an irreproachable character, and sufficient means of subsistence; or the right may be obtained by the purchase of a residence or a freehold in any commune, or by the consent of the state, or by holding office under government. A foreign woman married to a native, or a foreign child adopted by one, becomes a subject. In Saxony it is necessary to have had a domicile in a district for 5 years with the consent of the local authorities, or to have owned real property for that period, or to have obtained the freedom of a city; and the alien must have resided in the district, or upon his property, or in the city conferring its freedom, for 5 years.—In the Hanseatic towns but few conditions are imposed. In Bremen resident foreigners of good character are admitted to citizenship upon the payment of $40; and if the foreigner intends to settle as a master mechanic he must be admitted a member of the appropriate guild. If he designs to engage in commercial pursuits, a payment of about $400 is required. In Hamburg all who take up their residence, except Jews, are admitted upon the payment of a moderate sum. To do business, however, it is necessary to be a member of some guild. In Lübeck persons of good character, who have the means of supporting themselves, may become citizens after residing sufficiently long to indicate an intention to fix there their permanent residence. In Frankfort-on-the-Main citizenship is conferred for public service, and otherwise obtained if the government is satisfied as to the good character and ability of the person to support himself. When admitted in any of these free cities, the citizen's or burgher's oath is taken, equivalent to an oath of allegiance.—In Switzerland every man, even a native, is regarded as a vagrant or a man without a home, and chased from canton to canton, unless he is a citizen of some commune. This citizenship is obtained upon the payment of the requisite fee into the treasury of the commune. In the case of foreigners, naturalization is granted by the legislature in some cantons, in others by the executive. No period of residence or qualification is necessary, but the cantons are jealous of foreigners and disposed to be exclusive. In the aristocratic cantons it is almost impossible for any but a wealthy man to obtain naturalization. In Ticino full citizenship is not obtained until 5 years after naturalization; but in Bern, Vaud, Zürich, Geneva, and most of the cantons, it is conferred when the alien is naturalized. A citizen of any community of one of the cantons is on an equal footing with those of any other canton. He may reside, do business, and enjoy every civil and personal right, but not political rights.—In Portugal an application must be made to the king through the secretary of foreign affairs, which is referred to the council of state. The applicant must be over 25 years of age, have resided in the country two years, and have the means of subsistence. The residence for two years is dispensed with upon proof that he has married a Portuguese, or been useful to the state by embarking in commerce, improving any branch of the arts, or introducing any new trade, manufacture, or invention, or by opening or improving a public road; and they are generally dispensed with in the case of mariners, as it has been the constant policy of Portugal to encourage foreigners to enter and augment its marine.—In Spain, by the ancient law of the realm, no foreigner could be naturalized. The constitution of 1837, however, included in its classification of Spanish subjects those who should receive letters of naturalization, and provided for the enactment of a law declaratory of the conditions upon which such letters would be granted. The present state of the law appears to be unsettled or difficult to ascertain. All that can be gathered is that 5 years' residence is necessary, that the applicant must be of the Roman Catholic religion, and that the right of a Spanish subject to renounce his allegiance is recognized by law.—In Sardinia any person who has resided in the country 5 years, and has purchased real estate or engaged in a useful commercial business, may apply to the minister of justice to be naturalized. The application is referred to the councillors of state, and if they report favorably letters of naturalization are granted, which must be signed by the monarch. These conditions must be complied with in every case; even the king has no power to dispense with them. In the Papal States, the pope may naturalize any person he thinks proper. It is a power, however, but rarely exercised. The usual course is to grant it after 5 years' residence, in cases where the applicant has purchased real estate, or has engaged in some useful commercial business. In the Neapolitan dominions, previous to the changes consummated in 1860, the king, as in the Papal States, naturalized whom he thought proper; but the exercise of the power was very unusual. The general mode was the same as in the Papal States. In Naples and the Papal States none could be admitted but Catholics; but in Sardinia no distinction is made on the ground of religion. The policy of the several Italian states and the disposition of the people are averse to naturalizing foreigners. Every case, even in Sardinia, is closely scrutinized. In 1850, in consequence of extensive emigrations into Sardinia from Lombardy, Naples, and the Papal States, a special act was passed dispensing with the qualification of residence in respect to this class of Italians; but the law has since been repealed. In the republic of San Marino, naturalization is granted without residence on the payment of $10, the republic engaging to give protection for three weeks to any naturalized citizen taking refuge there.—In Greece the policy of the government has been absurdly restrictive. The course pursued with respect to the disposition of the public lands, and the immigration and settlement of the Greeks of the islands and the Turkish provinces, has been such that no encouragement has been held out to this large body of the Hellenic family to quit the miserable and tottering empire in which they have been so long oppressed. The consequence has been that the population of the kingdom is at present but little over a million, when it might have been two or three millions under a liberal system. The 3d article of the constitution of 1843 defines citizens (πολιται) to be those who have acquired or may acquire the characteristics of a citizen according to the laws of the kingdom; and the national assembly that formed the constitution passed a decree, to be of the same force and effect as if incorporated in that instrument, by which it was declared that the government should neither retain nor appoint to places in the public service those who were not embraced in the following classes: 1, the native inhabitants of the Greek state, and those who took part in the struggle for independence to the end of 1827, or who came to Greece and remained there until the end of that year, and those who took a military and decisive part in battles with the enemy by sea or land up to 1829; 2, those inhabitants and combatants of continental Greece or of the islands, who took up arms in the war of independence, and who up to 1837 came and established themselves in one of the demes (districts) of the kingdom; and the descendants of the above classes. Those who established themselves in the kingdom between 1827 and 1833, are declared eligible in two years after the publication of the constitution of 1843; those who established themselves between 1832 and 1838, after 3 years; and those from 1837 to the end of 1843, the period of the framing of the constitution, after 4 years. In addition to this, by a law subsequently passed, a Greek by birth, though not a native of the kingdom, who possesses a property qualification of 100,000 drachmas (equivalent to $16,000, a large fortune for Greece), may be elected a member of the βουλη (chamber of representatives) if he has resided 6 years in the country, and 3 years in the province for which he is chosen. The number of those not of the Greek race in the kingdom is exceedingly small, and we are not informed whether there has been any legislation by which they can acquire the privileges of citizens.—In Turkey the population are divided into two great classes, the Turks or Mohammedans, the ruling race, and the Rayas, denominated "the flock," who with the exception of some few tribes are Christians or Jews. The Rayas are organized in distinct communities, having their own municipal regulations, as Armenians, Bulgarians, Bosnians, Servians, Latin Christians, or Jews, under a recognized head, as a bishop, patriarch, or other ruler, who is responsible to the sultan for the good conduct of his community. Resident foreigners may become members of one of these communities with the consent of the body, upon giving due notice to the Porte, and when admitted are entitled to the privileges and bound to the obligations of Turkish subjects. Foreigners, not members of one of these communities, are aliens and under the protection of their respective consuls. The Mohammedans enjoy greater privileges than the Raya communities, and foreigners of whatever creed or nation may be received into this class upon embracing Mohammedanism. Their naturalization is both a civil ceremony and a religious rite. It consists in going first to the Porte or the executive authority representing it, in putting on the fez cap, and making a public declaration of faith in the words: "There is no God but God, and Mohammed is his prophet;" and then repeating the same ceremony in the mosque. Circumcision is also a condition; and when the ceremony is gone through, the proselyte is invested with all the rights of a native-born Mohammedan subject. In Egypt, Persia, and throughout all the Mohammedan countries, naturalization is effected in the same way, either by embracing Mohammedanism or by being formally admitted a member of one of the other organized communities.—In the European states, with but a few exceptions which have been mentioned, a naturalized foreigner enjoys every civil and political right, and may hold the highest office. In all of them naturalization is a thing of rather unusual occurrence, the number of foreigners who become permanent residents in any one of them being very limited. Those who do are chiefly devoted to commercial pursuits; and as naturalization, as a general rule, is not essential to enable them to carry on trade or commerce, it is but rarely applied for.—In the different West India islands belonging to European powers, the authority to naturalize is generally vested in the sovereign or regulated by a local law. In the island of Cuba, by the Spanish ordinance of Oct. 21, 1817, the captain-general may grant letters of license for domiciliation to all resident foreigners, upon their taking an oath of fidelity and submission to the law. These letters entitle them to hold real and personal property, and to the same protection in their person and property as Spanish subjects; but for the first 5 years of domiciliation they cannot engage in trade, open a shop, or become owners of ships or vessels, unless in partnership with Spanish subjects. After 5 years of domiciliation they can become naturalized. They must present their original letter of license to the captain-general, and avow their intention to make the island their perpetual residence; and if it appear after due inquiry by the government that they have resided constantly on the island for 5 years, and are of good moral character, letters of naturalization are granted to them after they have sworn fidelity to the Roman Catholic religion, to the crown, and to the laws, and renounced all foreign allegiance to and every privilege received from any other government. When thus naturalized, they and their legitimate heirs and descendants acquire all the rights and privileges, and are placed upon the same footing as natural-born subjects. The provision, however, in respect to naturalization, though still in full force, has become practically a dead letter, as natives enjoy but few privileges which resident or domiciled foreigners do not possess.—In Hayti, by a modification of the civil code adopted in 1860, any person who in virtue of the constitution wishes to become a citizen must within a year after his arrival make an oath before a justice of the peace renouncing allegiance to every other government, upon presenting an official attestation of which at the office of the president of Hayti, he receives from that officer an act recognizing him as a citizen of the republic.—In Mexico two years' residence is required, and one year's previous declaration of intention. This declaration is in the form of a petition to the *ayuntamiento* of the place where the applicant resides. Before he can be naturalized, the applicant must prove before the nearest circuit judge that he is of the Catholic religion, and has a trade, profession, or income sufficient to support him. The documents containing this proof must then be laid before the governor or political chief of the district or territory, and, if satisfactory, letters of naturalization are granted by that officer to the applicant upon renouncing his former allegiance and swearing to support the constitution. Colonists who settle new lands can be naturalized a year after they have settled, and aliens in the naval service upon taking the oath of allegiance. The right is lost by accepting office or by becoming naturalized in a foreign country.—In Brazil 3 years' previous residence is requisite, after which naturalization is effected by a joint resolution, which must pass both chambers of the general assembly and be affirmed by the emperor. By a law passed in 1860 children of foreigners born in Brazil have, during their minority, the political condition of their parents; but on reaching their majority they acquire the rights and become subject to the duties of Brazilian citizens. A Brazilian woman marrying an alien follows his condition, but upon becoming a widow is considered a Brazilian subject if residing in Brazil, or if, returning there, she declares her intention to fix her residence in the country; and a foreign woman marrying a Brazilian has the political condition of her husband. In Peru and in Chili 5 years' previous residence is necessary; but where an alien has married a native, this period is reduced to 4 years.—In the states of Central America the more general rule is, as in Brazil, to naturalize the alien by a legislative act. In Costa Rica an application must be made to the president of the republic, accompanied by proof that the petitioner has resided there 6 years, of his good conduct during that period, and of his having honest means of subsistence. Letters of naturalization are then granted him by the president on his renouncing his previous national allegiance. In Honduras foreigners are naturalized by acquiring real estate and a residence of 4 years; but if one marries a Hondurian wife this period is reduced to 2 years, or a letter of naturalization may be obtained from the legislature for services rendered to the state, for an important improvement in agriculture or the arts, or for introducing a new manufacture in the country. In San Salvador they are naturalized by acquiring real estate and a residence of 5 years, or by contracting marriage with a Salvadorian woman and a residence of 3 years, or by obtaining a letter of naturalization from the legislative body in the same way and for the same causes as in Honduras. In most of the states of Central America naturalization is granted by the legislature to resident foreigners generally upon application without insisting upon any conditions; the clause that it is upon the ground of important services to the state, &c., being usually inserted in the letters of naturalization as a mere matter of form.

NAUDÉ, Gabriel, a French bibliographer, born in Paris in 1600, died in Abbeville in 1653. He studied medicine at Paris, and was for some time physician to Louis XIII. Afterward he spent some time at the university of Padua, where he obtained a diploma as doctor of medicine; and subsequently he officiated as librarian of several cardinals in Rome and of Mazarin in Paris. Queen Christina appointed him in 1652 royal librarian at Stockholm, but he was compelled to leave Sweden on account of his health, and died on his homeward journey to France. He was a scholar of extensive erudition, and collected a great number of rare books and MSS. His *Bibliographia Politica* (Venice, 1633) was translated into French in 1642. He wrote a number of other works, chiefly on political and bibliographical subjects. A collection of anecdotes from his table talk was published in Amsterdam in 1703 under the title of *Naudiana*.

NAUMANN, Johann Friedrich, a German ornithologist, born in Ziebigk, near Köthen, Feb. 14, 1780, died in Köthen, Aug. 15, 1857. His father was Johann Andreas Naumann, a well known ornithologist, and the son, after attending school at Dessau from 1790 to 1794, returned home and devoted himself to the study of agriculture, botany, geology, and ornithology. Later he turned his attention wholly to the last named science, especially to the study of the birds of Germany, and embodied his observations in a work entitled *Naturgeschichte der Vögel Deutschlands* (13 vols., Leipsic, 1822–'47), embellished by plates, a large number of which he himself engraved; and he was the author of many other ornithological works. He is considered the first of German ornithologists, and the German ornithological society named their journal from him *Naumannia*.

NAUMANN, Johann Gottlieb, a German composer, born in Blasewitz, near Dresden, in 1741, died in Dresden, Oct. 23, 1801. When 13 years of age he went to Italy, and afterward settled in Venice, where he remained 8 years teaching and composing music. In 1765 he returned to Dresden, and was appointed composer to the elector of Saxony. Shortly after he made a second journey to Italy, returning in 1769 to compose the opera of *Clemenza di Tito* for the marriage of the elector. In 1772 he made a third journey, and resided 2 years at Rome, where in 13 months he composed 5 operas. In his later years he composed much church music.—Karl Friedrich, a German mineralogist, son of the preceding, born in Dresden, May 30, 1797. He was educated at Freiberg, Leipsic, and Jena. After graduating at Jena he returned to Freiberg to hear the lectures of Mohs on mineralogy, made a scientific journey to Norway in 1821 and 1822, and embodied his observations in a work entitled *Beiträge zur Kenntniss Norwegens* (2 vols., Leipsic, 1824). In 1826 he succeeded Mohs in the chair of crystallography in Freiberg, and in 1835 was also appointed professor of geognosy. This position he held till 1842, when he went to the university of Leipsic as professor of mineralogy and geognosy. He has written much on subjects connected with his profession.

NAUMBURG, a fortified German town, in the Prussian province of Saxony, situated on the Saale, near the junction of the Unstrut, 23 m. S. S. W. from Halle; pop. about 15,000. It is an active manufacturing and commercial town, but the once famous fair of Naumburg has lost its importance. Among the principal public buildings are the cathedral, remarkable for its lofty towers and double choir, and the church of St. Wenzel with a famous picture of Cranach. An annual children's festival is celebrated here, in commemoration of the raising of the siege by the Hussites under Procopius, which according to tradition took place July 28, 1432, in consequence of the entreaties of the children of Naumburg. This event has been dramatized in Kotzebue's *Die Hussiten vor Naumburg*, but its authenticity has been called in question by recent historians. Several treaties were concluded at Naumburg in the 15th and 16th centuries, and the town was of great strategetical importance during the 30 years' war and the wars of 1806 and 1813.

NAUTILUS, a name applied to both the tetrabranchiate and dibranchiate orders of the cephalopod mollusks. In the former the true or pearly nautilus is the best known species of the only living genus representing the extinct chambered shells (such as ammonites, orthoceratites, turrilites, &c.) which abounded during the primary and secondary geological ages; in the latter belongs the nautilus of the ancients (the paper nautilus of the moderns), more properly called argonaut. For the characters of the class and orders see MOLLUSCA.—The genus *nautilus* (Linn.) has a discoid, symmetrical, univalve shell, with simple aperture, sutures, and siphuncle. The organization of the pearly nautilus (*N. pompilius*, Linn.) was first made known in Prof. Owen's celebrated memoir in 1832; and afterward by Gray, Grant, De Blainville, Valenciennes, and Huxley, the last in the "Proceedings of the Linnæan Society of London," vol. iii. No. 9, for Aug. 1858. The posterior portion of the body, containing the viscera, is soft, smooth, and adapted to the anterior chamber of the shell; the anterior is muscular, including the organs of sense and locomotion, and can be retracted within the shell; the mantle is very thin behind, and prolonged through the calcareous tube of the occupied chamber as a membranous siphon, and through all the divisions of the shell to the central nucleus; on the upper part of the head is a broad triangular muscular hood, the back part excavated for the involuted convexity of the shell, protecting the head when retracted, and used as a foot for creeping at the bottom of the sea with the shell uppermost. On each side of the head are 20 perforated digitated processes of a conical form, each containing a long finely ringed tentacle, whose inner surface is closely set with narrow transverse plates; the eyes, large and prominent, are placed on short pedicels on the side of the head behind the digitations; the subocular processes have no tentacles, and are rudimentary external ears, their cavity extending to the auditory capsule. The mouth has 2 horny mandibles, like the beak of a parrot reversed, the lower overlapping the upper, moving vertically, and implanted in thick muscular walls; the surrounding circular fleshy lip has 4 labial processes, each pierced by 12 canals, containing each a small retractile tentacle, making, with the 88 digital and 4 ophthalmic, 90 tentacles on and around the head. The internal cartilaginous skeleton is confined to the lower surface of the head, a part of the cephalic nervous system being protected in a groove on its upper surface, and the 2 great muscles which fix the body to the shell are attached to it. The funnel is very muscular, and is the principal organ of free locomotion, the animal being propelled backward by a succession of jerks occasioned by the reaction of the ejected respiratory currents against the surrounding water. The capacious crop opens into an oval muscular gizzard; the intestine terminates in the branchial cavity near the base of the funnel; the liver is bulky, and the bile is derived from arterial blood; there is no ink gland. Sea water is admitted into the pericardium; the branchiæ are 2 pairs, without branchial hearts, the larger branchia supporting 48 vascular folded plates on each side, the smaller 36; the large veins near the heart have clusters of follicles attached to them, according to Owen seeming to be homologous with the so called renal glands of lower mollusks; by some they are considered as diverticula to relieve the circulation during the varying pressures to which the animal is subjected. The tongue is furnished with numerous papillæ and spines. The nautilus, though the lowest of the cephalopods, offers a nearer approach to the vertebrate type than does any other articulate, in the perfect symmetry of the organs, the larger proportion of muscle, the increased bulk and concentration of the nervous centres in and near the head, in the vertical opposition of the jaws, in the gustatory papillæ of the tongue, and in the cartilaginous cephalic skeleton. The food of the nautilus consists of other mollusks and of crustaceans, showing that its natural habitat is the bottom of the sea, where it creeps about shell upward. The parts of the shell progressively vacated during the growth of the animal are successively partitioned off into air-tight chambers by thin smooth plates concave toward the opening, with sinuous margins, growing from the circumference toward the centre, and pierced by the membranous siphon. The young animal, before the shell becomes camerated, cannot rise from the bottom; but the older ones can come to the surface by changes in the expansion of the soft parts, by a slight vacuum produced in the posterior part of the occupied chamber, and, according to some, by the exhalation of some light gas into the deserted chambers; they rise in the water as a balloon does in the air, with the ability also of directing the motions to a certain extent by means of the funnel; they float at the surface shell upward, and sink quickly by reversing the shell. The proportion of the air chambers to the dwelling chamber is such that the shell is nearly of the same specific gravity as the water; the siphon communicates with the pericardium, and is probably filled with fluid from that cavity; it conducts small vessels for the nutrition of the shell, and perhaps for secretory purposes. A large and perfect shell will weigh 6 or 7 oz., and the soft parts 5 or 6 oz. more; the exterior crust of the shell is whitish with fawn-colored streaks and bands, and the interior has a beautiful pearly lustre, and is in request by cabinet makers and jewellers; by removing the external coat by acids, the pearly surface is readily exposed, and shells thus treated and richly engraved were formerly highly prized as ornaments for the mantlepiece and sideboard. This species is so common in the S. Pacific, that at certain seasons of the year they are carried by the winds and currents to the island shores, where they are used, when smoke-dried, for food; in the Papuan archipelago the shells are used as common utensils; they are found from the Persian gulf and Indian ocean to the Chinese seas and the Pacific. In the umbilicated nautilus (*N. umbilicatus*, Lester) the last whorl of the shell does not envelope and conceal the others; the shape is ventricose, the surface reticulated, and the color dusky smoky, with numerous delicate chestnut flammules (5 to the inch). In the *N. scrobiculatus* (Soland.), like the last from the S. Pacific, the surface is smooth and shining, the color ochreous, with 3 chestnut flammules to the inch, and the sides undulated with distinct waves. A nautilus extended in a straight line would be a shell like a fossil orthoceratite; in the ammonites the shell is coiled as in the nautilus, but is strengthened by arched ribs and dome-shaped elevations on the convex surface.—The paper nautilus or argonaut belongs to the octopod group of the dibranchiate cephalopods, or to the *acetabulifera* of D'Orbigny, from the arms being provided with sucking disks. The argonaut differs from the true nautilus in the arms of larger size and more complicated structure, partially connected by membrane at the base; in the larger and more complex eyes, not pedunculated but lodged in orbits; in the gills being only 2 in number, each with a branchial heart; in the funnel being an entire tube; and in the presence of an ink gland and bag for its secretion. In the genus *argonauta* (Linn.), in the females, which alone have a shell as an egg receptacle, the 1st or dorsal pair of the 8 arms are dilated into broad thin membranes, which secrete and sustain the very light, paper-like, calcareous, symmetrical, and single-chambered shell; like the other arms, these are provided with 2 rows of suctorial disks, extending around the whole circumference, by means of which the animal retains the shell in position; the 6 non-palmated arms serve as organs of prehension, of locomotion, as the animal drags itself along the bottom or climbs the rocks in search of food, and as anchors; the shell, as in the nautilus, is carried above the body. The arms are attached to the anterior part of the cephalic cartilage; the suckers are completely under the control of the animal, which can fasten or relax them instantly. Swimming is effected in a retrograde manner by the ejected currents from the funnel. The skin is soft and tender, and includes a great number of cells containing pigment matter of different colors, whose contractions and expansions, with the surface movements, give it a remarkable power of rapidly changing its tints. There is no internal shell, and it is now ascertained that the external shell is peculiar to the female, and is only an incubating and protective nest for the eggs; it is not the homologue of the internal rudimentary shell of the cuttle fish, nor of the external chambered shell of the nautilus, but rather answers to the cocoon of leeches and other articulates, or to the egg-float of the delicate gasteropod *janthina;* the eggs are attached by thread-like stalks to the involuted spire of the shell, behind and beneath the body of the female. The best known species, the *A. argo* (Linn.), inhabits the Atlantic, Pacific, and Indian oceans, and the Mediterranean, especially about Sicily. In the last named locality Madame Power made the experiments which determined that the argonaut is the maker of its own shell, and not a parasitic occupant like the hermit crab; this question arose from the fact that the animal has no muscular or other attachment to the shell, and has been known voluntarily to quit it, and survive in captivity a considerable time without any attempt to return to it; it also repairs the shell when broken by the agency of the palmated arms. For an account of the arguments for and against parasitism (among the advocates of the former being De Lamarck, Leach, De Blainville, Broderip, and Sowerby, and among those of the latter Cuvier, Duvernoy, Ferussac, and D'Orbigny), and for an extensive bibliography on this animal, see "Proceedings of the Boston Society of Natural History," vol. v. pp. 369–'81 (1856). Leach, who considered the animal a parasite, described it as the genus *ocythoë*. The sexes are distinct; the specimens usually found are all females, the males having been until recently described as parasites under the name of *hectocotylus;* this is a worm-like body, resembling the arm of a cuttle fish, the under surface bordered with 40 or 50 pairs of alternating suckers; for a long time regarded as a parasitic annelid, it is now known to be the spermatophorous arm of the male argonaut, deciduous during sexual congress, and attaching itself within the mantle of the female; in this genus it is the 3d arm of the left side which is thus deciduous and hollowed for the spermatic receptacle. The male argonaut has no shell and no palmated arms, and is only about ⅛ of the size of the female. The argonaut, according to Rang, rises to the surface shell upward, turning it downward when it floats on the water; by retracting the 6 arms within the shell and placing the palmated ones on the outside, it can quickly sink, explaining why the animal is so rarely taken with the shell. There is a specimen of this rare animal in Boston, belonging to the family of the late Dr. J. C. Warren. The shell is flexible in the water, but very fragile when dry; a specimen, the largest known, in the cabinet of the Boston society of natural history, is 10 inches long, 6¼ broad, and the opening 4 inches wide; this cost the donor $500. Many species of the genus are described.

NAUVOO, a town of Hancock co., Ill., on a bend of the Mississippi river, near the head of the lower rapids, 52 m. above Quincy and 220 m. above St. Louis; pop. in 1857 estimated at 3,000. It was founded by the Mormons in 1840, and contained about 15,000 inhabitants at the time of their expulsion in 1846 by the neighboring people. The city was regularly laid out with broad streets crossing at right angles, and the houses were built generally of logs, with a few frame and brick buildings interspersed. A temple 130 feet long by 90 wide was erected of polished limestone. The baptistery was in the basement, and held a large stone basin supported by 12 colossal oxen. In 1848 this building was set on fire by an incendiary, and all destroyed except the walls, which on May 27, 1850, were overthrown by a tornado. For a few years subsequent to 1850, Nauvoo was the abode of M. Cabet, the French communist, and a few followers.

NAVAJOES, a branch of the great Apache tribe of Indians in the territory of New Mexico. They occupy a district between the rivers San Juan and Little Colorado, tributaries of the Colorado, but make frequent incursions into the Mexican settlements on the Rio Grande, where they commit great depredations, carrying off thousands of horses, mules, and sheep. In 1846 an expedition under Col. Doniphan was sent against them, which resulted in a treaty of very brief duration. In 1849 Col. Washington marched against them, and reached the cañon de Chellé, a fastness among the mountains exceedingly difficult to approach, where a second treaty was made. But the murder of some of their people by the Mexicans led to a renewal of hostilities on their part, which was not quieted until Col. Sumner with a strong force once more entered their stronghold in 1851, and constructed at Cañoncito Bonito, in the heart of their country, a strong military post which he called Fort Defiance. From this fort Col. Sumner marched with 6 companies of dragoons and a battery of artillery against the Navajoes; but, although several skirmishes took place between them, the Indians avoided a general fight. Finding the troops had permanently established themselves in their country, the Navajoes soon after approached the fort in a formidable body and solicited an interview. It was at once granted, and resulted in an agreement on their part to cease hostilities and depredations against the troops of the United States, the citizens of New Mexico, and the pueblas of Tunice and Moqui. Since that time these Indians have conducted themselves better toward the troops, but their depredations continue on the Rio Grande. Major Backus, who was in command at Fort Defiance for a year, does not place so low an estimate as some others on this people. In a communication to Mr. Schoolcraft he says: "As a nation they do not deserve the character given them by the people of New Mexico. From the period of their earliest history, the Mexicans have injured and oppressed them to the extent of their power; and because these Indians have redressed their own wrongs, the Mexicans have represented them as a nation of thieves and assassins." These people were formerly represented by the hunters and trappers as considerably advanced in civilization, cultivating the soil, and dwelling in large houses; an error into which they doubtless fell by supposing them to belong to the Pueblo tribes which really possess these arts. The language of the Navajoes clearly identifies them as belonging to the Apache family, and for the advances they have made in the arts they are no doubt indebted to the Moqui, Zuñi, and other Pueblo tribes near them. They cultivate to a limited extent, by artificial irrigation, the rich soil in the valleys where they have fixed residences, with rude and very primitive implements of their own manufacture. They raise corn, pumpkins, and melons, and a little wheat. They also raise horses, sheep, and a few horned cattle and goats; but the largest additions to their stock of sheep and mules are by stealing from the settlements near the Rio Grande. This, the Indian agents assert, is not done by the tribe at large, or even countenanced by it, but by bad men of the tribe whose movements the chiefs cannot control. They manufacture their own blankets and other articles for clothing, from wool taken from their own sheep, some of which are of a superior texture, and command from $25 to $50 in the shops of Santa Fé and El Paso. These blankets are much sought after both by Americans and Mexicans, who wear them as serapes. Cotton blankets are also found among them, but these are made by the Pueblo tribes further south, who raise their cotton. Unlike the Pueblo Indians, who live in well built houses of adobe or stone, the Navajoes dwell in rude wigwams constructed with poles and branches of trees, and often in the caverns and fissures so common in the rocky cañons (defiles) of their country. As often as they change their grazing grounds, they repair and reoccupy some deserted lodge, but never one in which a person has died. In the winter they remove to the south, where there is little snow and better pasturage for their animals. The Navajo almost lives on horseback; and few men equal him in the management of that animal. There are individuals among them who own from 400 to 500 horses, many of which are worth from $50 to $500 each, and some will command a higher price. Major Backus, who spent some years there, was informed by U. S. officers who attended a gathering of them, that they saw at least 2,000 horses near Cienega Juanito, feeding on the plain under the charge of herdsmen, and that in addition at least 500 Indians were mounted during the whole day and night. Col. Eaton of the U. S. army, who was also among this people, has a very low estimate of them, considering them the rudest, least intelligent, and least civilized of all the tribes of Indians he has ever seen. Such progress as they have made he thinks is owing to their intercourse with the Spanish population in New Mexico. The government of this people is patriarchal. "There are rich men among them," says Major Backus, "whose possessions consist of large herds of horses and sheep. Every drove and herd is necessarily attended by herders; hence, every man has many dependants, who are obedient to his will in peace or war. The only elective office among them is that of war chief, and such office, I believe, expires with the occasion that created it. Every rich Navajo may be considered the chief of his clan, or of his own dependants; and these clans are usually friendly with each other, and make cause against a common enemy. In addition to these, there are many who recognize no leader, and who live like vagabonds, stealing indiscriminately, as occasion offers, from friends and foes." Mr. Merriwether, the Indian agent in New Mexico, in his report for 1854 states that "there is one band of the Navajoes who have separated themselves from their tribe, and removed eastward to the neighborhood of the Utahs and Jicarillas," who have committed the depredations referred to. Like all other Indians, the Navajoes are very superstitious. They never eat the flesh of the gray squirrel, yet delight in that of the prairie dog. Their weapons of war are the lance and bow and arrows, the former very long and pointed with a sharp flint or iron. Their arrows are also pointed, and are discharged with great precision. They use a shield made of raw hide, which is almost impervious to a musket ball. On their heads they wear a sort of cap made of deer skin, crowned with feathers, which much resembles an ancient helmet. A Navajo in full costume, with his bow, arrows, lance, and shield, is a very warlike-looking character. The young women are considered the property of their parents until they marry. Prior to the marriage, a contract is made between the groom and the father of the girl. The usual consideration paid is 5 or 6 horses, but for a girl of superior beauty and accomplishments 12 and even 15 horses are obtained. A woman may leave her husband for sufficient cause. They do not maintain a high character for chastity. Mr. Gregg estimates this tribe at 10,000 souls, which Major Backus believes does not differ materially from the truth; while Governor Bent, in a communication to the government in 1846, estimates them at 7,000.

NAVARETTE, or **Navarrete, Juan Fernandez**, surnamed **El Mudo** (the Mute), a Spanish artist, born in Logroño in 1526, died in Toledo, March 28, 1579. He was of noble parentage. In his third year he lost his hearing from severe illness, and in consequence his speech also. He studied painting in the monastery of the Hieronymites at Estrella, and afterward in Florence, Rome, Naples, and Milan, spending some time at Venice as a pupil of Titian. In 1568 he was appointed painter to the king of Spain. He devoted himself mainly to sacred subjects, and the greater part of his works are in the Escurial. Navarette was well versed in sacred and profane history and mythology as well as in the science and literature of his art. He could read and write well, and expressed his ideas to others, by means of signs, with great clearness. Lope de Vega speaks of him as the Spanish artist who was best able to cope with his Italian rivals.

NAVARINO, or **Neocastro**, a fortified town of Greece, in the Morea, at the S. extremity of the bay of Navarino, 5 m. N. from Modon, and 8 m. from Old Navarino, which stands on the N. coast of the bay, near the ruins of Messenian Pylos; pop. about 2,000. It has a citadel, situated on a high rock. The chief objects of interest are the remains of an old aqueduct, and some antique marble pillars adorning the front of the principal mosque. The bay of Navarino is about 3 m. long and 2 m. wide, with from 12 to 26 fathoms of water. It is shut in by the island of Sphacteria or Sphagia, famous for the victory achieved there by the Athenian Cleon over the Spartans, 425 B. C. The scene of Byron's "Corsair" is said to be laid in the same island, which has always been a notorious resort of pirates. Here, on Oct. 20, 1827, the combined fleets of Great Britain, France, and Russia gained a decisive victory over the Turkish-Egyptian fleet, which greatly promoted the success of the Greeks in their struggle for independence.

NAVARRE (Span. *Navarra*), an administrative province and captain-generalcy in the N. E. of Spain, between Aragon, Old Castile, and Biscay, bounded N. by France and the Pyrénées, E. by the provinces of Huesca and Saragossa, S. by Saragossa and Logroño, and W. by Alava and Guipuzcoa; area about 2,500 sq. m.; pop. in 1857, 308,622. The country generally is intersected by small mountain ranges projecting southward from the Pyrénées; but near the banks of the Ebro, which forms a part of the southern frontier, there are wide and fertile plains. Beside that river, Navarre is watered by its tributary, the Aragon, which, coming from the N. E., receives several smaller streams, running due S. from the mountains, and toward the N. W. by the upper Bidassoa, which falls into the bay of Biscay. While the mountainous region is bleak, cold, and unsuitable for tillage, the valleys are fertile in wheat, maize, barley, and oats. Hemp, flax, oil, wine, and liquorice are also produced; but both agriculture and manufactures in Navarre are yet in a very backward state. The facilities for trade are inconsiderable; the canal of Aragon, which connects Tudela and Saragossa, is the principal means of intercourse with the adjoining provinces on the E., while the high road from Pampeluna to Madrid is the thoroughfare toward the S.; but Navarre will soon have its share in the railroad improvements now going on in the peninsula. It communicates directly with France through mountain passes or defiles, the most celebrated of which is that of Roncesvalles, where the army of Charlemagne was defeated, and the reputed scene of the death of Roland. In the mountains, beside the Pyrenean limestone, jasper and marble occur in large beds; there are several iron mines, and one of copper, numerous thermal springs, and a quarry of rock salt at Voltierra. The forest trees of the Pyrénées, chiefly consisting of pines, beeches, oaks, and chestnuts, furnish an abundant supply of building timber. Wolves, wild boars, foxes, and wild cats are found in the mountains. The principal occupation of the people is pasturing sheep, goats, and cattle. Wool, grain, and wine are the chief exports, and silk and cotton fabrics and colonial produce the most important imports. The Navarrese are tall and well formed, and evince an independent spirit and great attachment to their religion and ancient privileges. The Castilian language is generally used among them; but the Basque is spoken in the N. and W. districts. Capital, Pampeluna.—This province, which is sometimes termed Upper Navarre, once formed a kingdom, in conjunction with Lower Navarre, which is situated on the northern slope of the Pyrénées, within the limits of France. It was one of the first Christian principalities founded after the conquest of Spain by the Arabs, and in fact, although occasionally overrun by those invaders, was never subdued. It acknowledged for a while the supremacy of Charlemagne and his immediate successor, Louis le Débonnaire; but in 831, under Count Aznar, it vindicated its independence, which was sanctioned in 887 by the diet of Tribur. At the beginning of the 11th century, under Sancho III., surnamed the Great, its limits were considerably enlarged; and it was for a while the most powerful among the Christian kingdoms of Spain. In 1234 it fell by inheritance to Thibault, count of Champagne, whose granddaughter Jeanne in 1273 married Philip the Fair of France; and on the accession of that prince to the throne in 1285, Navarre was united to France. This union lasted 43 years; and on the accession of Philip VI. of Valois, Navarre returned to its own sovereigns. Jeanne, the daughter of Louis X. of France, the lawful heiress, brought the Navarrese crown to the house of Evreux, from which, by intermarriage, it passed in succession to the houses of Aragon in 1425, of Foix in 1479, and finally of Albret in 1484. The whole of Spanish Navarre was in 1512 seized by Ferdinand the Catholic, king of Aragon; and henceforth the kingdom was limited to the small district known as French or Lower Navarre. By the marriage of Duke Antoine to Jeanne d'Albret Navarre was acquired by the house of Bourbon, and their son Henry of Navarre, in 1589, inherited the throne of France. His successors, until 1830, styled themselves kings of France and Navarre.

NAVARRETE, Domingo Fernandez, a Spanish missionary, born in Penafiel, died in St. Domingo in 1689. He joined the Dominican order, and in 1647 was sent to the Philippine islands, where he became professor of theology in the college of Manila. Subsequently visiting China, he penetrated into the interior of the empire, and was for some years superior of his order in that region; but during a persecution he was apprehended and sent to Canton, whence he escaped to Macao, took ship for Europe, and reached home in 1673. In the same year he went to Rome, and protested to the pope against the policy of the Jesuit missionaries in China, whom he accused of accommodating themselves more than was lawful to the customs of the natives. In 1678 he was appointed archbishop of St. Domingo. He published *Tratados historicos, politicos, ethicos, y religiosos de la monarchia de China* (fol., Madrid, 1676). A second volume of this work, relating mainly to the disputes between the Jesuit and Dominican missionaries, was suppressed by the inquisition, and a third was written but never printed.

NAVARRETE, Martino Fernandez, a Spanish historian, born in Abalos, Old Castile, Nov. 9, 1765, died in Madrid, Oct. 8, 1844. He was educated at Vergara, and in 1780 entered the navy as a midshipman. He cruised with the Spanish fleet in the English channel in 1781, was present at the attack on Gibraltar and the consequent destruction of the Spanish floating batteries in Sept. 1782, and afterward served against the Moors and Algerines. In 1789, being compelled to quit active service on account of his health, he was commissioned by the Spanish government to compile from the national archives a collection of documents on the history of Spanish maritime discovery. He interrupted his labors to return to sea when war was declared with France, and remained afloat until he was appointed in 1797 to a post in the ministry of marine. On the French invasion he retired to Seville, refusing to accept office under Joseph Bonaparte. In 1823 he was made chief of the hydrographical department, and for many years exercised a great influence over Spanish naval affairs, and was the virtual head of the admiralty. In the mean time he had applied himself with unabated zeal to literary labors, proposed the new system of orthography adopted by the Spanish academy in its dictionary, contributed to the transactions of the academy of history and the academy of San Fernando, of the latter of which he was secretary, and wrote a "Life of Cervantes" (Madrid, 1819). The first 2 volumes of the great work to which he devoted the best part of his life were published at Madrid in 1825, under the title of a "Collection of the Voyages and Maritime Discoveries made by the Spaniards since the Close of the 15th Century." The 3d appeared in 1829, and the 4th and 5th in 1837. The 6th and 7th were left unfinished at the author's death. The first 2 volumes are devoted to the discoveries of Columbus, concerning whom they brought to light an immense wealth of information, consisting of letters, public documents, &c., which were the basis of Washington Irving's "Life of Columbus." The collection, though invaluable as a source of history, has no pretension to being a connected narrative, and is little read. It has received the warmest commendation of Irving, Prescott, and other historians, but its value has sometimes been called in question. Navarrete commenced in 1842, in concert with two other Spanish gentlemen, a "Collection of Unpublished Documents for the History of Spain," which was issued in numbers. Five volumes appeared during his lifetime, and it was continued after his death. He published a treatise on the Spanish discoveries on the Pacific coast of North America, prefixed to a narrative of the "Voyage of the Sutil and Mexican on the Coasts of California" (1802), and left unfinished a general history of the maritime affairs of Spain. His "Dissertation on the History of the Nautical and Mathematical Sciences in Spain" was published by the academy of history in 1846. A collection of Navarrete's smaller works was begun by his sons in 1848.

NAVARRO, a N. E. co. of Texas, bounded N. E. by the Trinity river, by branches of which it is drained; area, 1,400 sq. m.; pop. in 1857 estimated at 7,250, of whom about 2,000 were slaves. It has a rolling surface, with a rich, dark soil along the water courses, and a large portion of prairie. The chief productions in 1850 were 73,040 bushels of Indian corn and 12,197 of sweet potatoes. There were 5 grist mills and 1 saw mill. Capital, Corsicana.

NAVIGATION, the art or system of rules and practices, by means of which vessels are directed in their course upon the water. The science of navigation has grown to its present state by slow degrees, and by contributions from the most opposite sources; from practical and uneducated seamen whose ingenuity has been taxed to supply those deficiencies which experience had made known, and from the most profound and secluded philosophers, whose lives have been passed in "commerce with the skies," either by observing the motions of the heavenly bodies, or by investigating the laws by which those motions are regulated. The most valuable services to navigation, however, have in several cases been performed by those who have combined an experience of the sea with astronomical science, and who therefore were both acquainted with the seaman's needs, and qualified to meet them.—The history of navigation embraces in an important degree what Prof. Guyot calls the "geographical history of man." As the indispensable auxiliary of commerce, it has taken a large part in human progress, and especially in those discoveries, whether earlier and less connected, or later and more important, which have the nature of sudden leaps or bounds in human affairs. The free and open paths of the sea have proved to be the paths of knowledge and civilization, narrow in the beginning, but afterward widening sufficiently to take in the whole earth. If, indeed, we glance back into the remote ages, we perceive that the most forcible and pregnant illustrations of the condition of man at certain epochs may be derived from the state of navigation at those epochs. Thus, for example, the obscure period of the enterprise of Jason, before any vessels had ventured beyond the Ægæan archipelago to the west, even so far as the Italian peninsula, is strikingly contrasted with the period of commerce and colonization of the Phœnicians, or with that of later Greece. A vast change took place in the affairs of men when the art of navigation, no longer limited to the shores of the Mediterranean and the coasts of Europe, led the way across the great oceans, and circumscribed the globe. In the history of navigation, as elsewhere, we are obliged to commence with periods and events that are partially fabulous, though founded upon actual occurrences. The expedition of the Argonauts, concerning which the language of the early Greek writers is so mythical, is now regarded as a final and triumphant effort to open the Euxine sea to the national enterprise. "The legend of Prometheus and the unbinding the chains of the fire-kindling Titan on the Caucasus by Hercules in journeying eastward, the ascent of Io from the valley of the Hybrites toward the Caucasus, and the myth of Phryxus and Helle, all point to the same path on which Phœnician navigators had early ventured." (Humboldt.) As the expedition of the Argonauts to Colchis opened the way to the east, so the voyage of Colæus of Samos, who sailed for Egypt, but was driven by easterly storms, "not without divine direction," says Herodotus, beyond the pillars of Hercules into the ocean, extended the commerce and intercourse of the Greeks to the peninsula of Spain (Iberia), and discovered a region which, like the eastern basin of the Black sea, had before been only a ground for mythical conjectures, the way that led to the Elysian fields and the Hesperides. Interposed between this age and the historical period of Grecian navigation and colonization, appear the Egyptians, the Phœnicians with their African colonies, particularly Carthage, and the Etruscans. There is satisfactory proof that the Egyptians navigated not the Nile alone, but the Arabian gulf also; and the canal from Suez, begun before the exodus of the Hebrews (and, after so long a period of neglect and decay, about to be reconstructed, probably, in our own time), had for its object a free access to the Arabian copper district. The Phœnicians were associated with Egyptians in voyages of greater length; the most remarkable of these is the alleged circumnavigation of Africa. The truth of the account of this event, as given by Herodotus, is confirmed by an observation which seemed to the historian the most incredible, "that those who sailed around Lybia, in sailing from east to west, had the sun on their right hand." Concerning those commercial enterprises of the Phœnicians which were directed toward the east, as well as concerning their wealth, we have the testimony of the prophet Ezekiel, who, in prophesying the dreadful fall and the judgment of Tyre, describes her riches, magnificence, and wide-spread commerce; and a further testimony in the history of Solomon's employing King Hiram and his navy, in bringing from Ophir "gold, great plenty of almug trees, and precious stones." It is chiefly, however, through her colonies that the bold and well directed character of Phœnician navigation manifested itself, and exercised the greatest influence upon human progress. It is impossible now to separate the fabulous from the true in the story of Cadmus; but it is nevertheless probable that "it was through the commercial intercourse of the Ionians with the Phœnicians that the Greeks received the characters of their alphabetical writing, which were long termed Phœnician signs." Phœnician navigation led to the general diffusion of trade throughout the Mediterranean sea, and Phœnician colonies on the south of Spain and in the north of Africa preserved and continued the same spirit of enterprise long after the decline of the parent state, when the course of empire had commenced its march to the westward, and Rome had become the rival of Carthage. But the interest attached to these colonies goes still further. It serves to connect, by a delicate link, the most conspicuous enterprises of navigation in the ancient world with the boldest and most successful voyages of modern times. It was from the vicinity of a Phœnician settlement that Columbus took his departure for the discovery of America. And in this chain of connection there is still another link, which is the discovery by the Phœnicians of the islands of Porto Santo, Madeira, and the Canaries, which moved the "geographical myth of the Elysium further and further beyond the pillars of Hercules, and must be regarded as the first step in that direction (the navigation of the great oceans) in which the efforts of the mariner were long directed before being crowned with success." As the Greeks succeeded the Phœnicians and Egyptians, so they, in turn, were succeeded by the Romans, who had imbibed from the Etruscans a taste for trade. Our object being merely to trace out the gradual expansion of navigation, we shall not give any space to the military enterprises of the Greeks and Romans conducted by sea. The art of navigation was not improved, nor its field extended, during the dark ages. The barbarous nations who dismembered the Roman empire, and the Saracens, confined all their expeditions to the Mediterranean sea. The Normans and Danes, in their northern coasting excursions, made chiefly for plunder, added little to the stock of knowledge. Subsequently, the Genoese and Venetians, by their practice upon the sea, whether for trade or war, seemed to be preparing a school for the training of future discoverers, without doing any thing more themselves than changing the forms of vessels, or improving the means of propulsion by a more convenient distribution of the sails and rigging.—Hitherto we have seen that the most prominent feature of navigation is, that it has been limited to enclosed seas like the Mediterranean, to gulfs and archipelagos, and to the coasts. Beyond the sight of land, the mariner had no guide in cloudy nights, and no resource in stormy weather; consequently, the most remote and venturesome expeditions only crept along the shore; and the sea was avoided as much as possible during the winter season, from the middle of November to the middle of March. The discovery of the mariner's compass changed this state of things entirely, by furnishing a never-failing guide, as useful and safe to the navigator in the night as during the day, and in storms as in fair weather. It is uncertain to whom the world is indebted for the first observation of the directing powers of the magnet, and for the equally great boon of their application to the purposes of travelling by land and sea. "In a Chinese work belonging to the first half of the 2d century, mention is made of magnetic cars given, more than 900 years before, to the ambassadors from Tonquin and Cochin China, that they might not miss their way in their homeward journey by land. A century later, Chinese ships used the south magnetic direction, to guide their course in the open sea." (Humboldt.) The introduction to Churchill's "Collection" contends (passionately, we may say) for the honor of the discovery in behalf of Flavio Gioja of Pasitano, near Amalfi, in Campania; whence *Prima dedit nautis usum magneti Amalfis.* The date assigned to Gioja's invention is about the beginning of the 14th century. But the use of the compass is mentioned in a politico-satirical poem written in 1190, and by Jacob of Vitri, bishop of Ptolemais, 1204–'15. Dante alludes to it in his *Paradiso:*

Si mosse voce che l'ago alla stella.

There can be no doubt that to Flavio Gioja belongs the merit of having invented something by which its adaptation to nautical purposes was very much promoted; but that it was used at sea before his time appears from the nautical treatise of Raymond Lully of Majorca, who says in his *Fenix de las maravillas del orbe*, written in 1286: "The navigators had an instrument" (probably an astrolabe for observing the sun), "sea chart, and mariner's compass." We may here observe, by the way, that Majorca, always famous for its sailors, seems to have possessed also men distinguished in nautical science; for a little more than a century later, Henry, duke of Viseo, brother of Edward, king of Portugal, sent for one Master James, from the island of Majorca, to teach navigation and make instruments and charts for the sea. But though we are left in doubt as to when the compass was brought into familiar use among the Europeans, we have no difficulty in deciding upon its indispensable importance. Without it, Vasco da Gama and Columbus, and their companions and successors, could not have executed their grand projects of discovery. The discovery of the compass divides the history of the art of navigation into distinct periods: the ancient, when the chief nautical enterprises of trade and war were confined to the Mediterranean, round which interior sea the most civilized and progressive nations were settled (to use the language of Socrates), "like ants or frogs round a marsh" (*Phædo*, Cary); and the modern, when the navigation of the oceans commenced, and the timid adherence to the land was abandoned. Having briefly reviewed the former, it remains for us to give a short account of the rise of the modern art of navigation, and to explain in a popular manner some of its principal processes.—When ships, carrying with them an unfailing guide to direct their course, began to traverse the great seas in all directions, the cross staff and the astrolabe furnished them with the means of measuring the altitude of the sun and stars, and thus of approximately determining the latitude and time. But the most serious inconvenience arose from the unavoidable use of a plane chart, to represent or misrepresent the sphere, the gross distortions and errors of which often misled the mariner, especially in voyages far distant from the equator. Recourse was had to globes to remove this evil, and a famous pair is mentioned which were made in 1592, under the direction of Mr. William Sanderson, a merchant, "commended for his knowledge as well as generosity to ingenious men." On the terrestrial one were described the voyages of Drake, Cavendish, and Frobisher. Mr. Robert Hues, who had been at sea and was a man of letters, wrote, among other meritorious pieces, an elaborate tract in Latin on the use of these globes. The plane chart, however, being so much more easy and convenient in practice, kept its place until the invention of Gerard Mercator, a native of Rupelmonde, in East Flanders, in 1569, supplied the long sought for remedy. Mercator's projection of the sphere upon a plane surface consists in keeping the meridians parallel, but augmenting the length of the meridians between the parallels of latitude, in receding from the equator, in such a manner that the just proportions of the meridians and parallels of latitude to each other are preserved. The signal advantage of this projection is, that the directions of the compass, or what in technical language are called the "compass courses," are straight lines. The navigator works most conveniently upon a plane surface, and by means of Mercator's projection he is enabled to lay down his courses with a parallel rule, the points being taken from a compass drawn on the chart, and the line being one that cuts all the meridians at the same angle, and marks the magnetic bearing of the objects through which it passes. This is called the rhumb line or loxodromic curve, and the definition of it answers for the definition of the compass course. Such is the suitableness of Mercator's projection to the use of the mariner's compass, that the latter now seems to have been an incomplete discovery until the announcement of the former. It is suggested that Mercator arrived at his invention by simply observing on the globe where the meridians were cut at each parallel of latitude by the rhumb lines; and it is admitted that he never laid down, if he knew it, the mathematical theory on which it rests. This was first announced by Edward Wright, of Caius college, Cambridge. Shortly after this (1595), the famous navigator, Capt. John Davis, who gave his name to the straits which he discovered, published a small treatise called "The Seaman's Secrets," at the end of which he gives a figure of a staff of his contrivance, to make a back observation; "than which instrument," he said, "the seaman shall not find any so good, and in all clymates of so great certaintie." The celebrated Portuguese mathematician, Pedro Nuñez, or Nonius, had as early as 1587 published his book, which, with additions, was printed 30 years after by Basil in Latin, and called *De Arte et Ratione Navigandi*. In this he introduces, among much of what was then very valuable matter, his method of the division of a quadrant by concentric circles. Davis's back staff maintained the first place until it was superseded by the quadrant. Another important invention is the log, first mentioned by Pigafetta in the beginning of the 16th century. About the year 1620 logarithms were introduced into navigation by Edmund Gunter, whose scales are of such general repute; and shortly after, Richard Norwood published his method of setting down and perfecting a sea reckoning, with the use of a traverse table. In 1700 Dr. Halley published a general map, on which were delineated the lines of equal variation. It was hailed with great applause, as the means of determining the longitude at sea; how futile this expectation proved is now well known. But of all the gifts to the navigator, by far the greatest of this time is Hadley's quadrant. It has been superseded by the sextant, which does not differ from it in principle, but is very much more nicely constructed, and more accurate, convenient, and generally useful. (See QUADRANT, and SEXTANT.) For a long time the problem of the longitude engaged the attention of the men of science in Europe, and especially in Great Britain. The British house of commons has at various times offered rewards for the solution of this problem, one of which amounted to £20,000 sterling. Newton's improvement of the theory of the moon led to the construction of Mayer's lunar tables, and to the publication of the "Nautical Almanac and Astronomical Ephemeris," by Dr. Maskelyne, in 1767. The appearance of the latter created a new era in navigation, to which it rendered essential service. The lunar method, as it is called, has since received great additions, corresponding to the advancing state of astronomical knowledge, and the improvement in the instruments of the seaman and the astronomer. The method by the chronometer owes its highest success to the science and ingenuity of English artists and mechanics of the present generation, and that immediately preceding. (See CHRONOMETER, and LONGITUDE.) In our day the art or science of navigation has not failed to receive valuable accessions; such as Sumner's method for determining the position by lines of bearing or of equal altitudes; Chauvenet's (professor U. S. N.) great circle protractor, which furnishes great circle courses immediately by inspection, saving a world of figures, and also solves, in the same way, the problems of nautical astronomy; precise and trustworthy sailing directions and memoirs, like those of Horsburgh, the Blunts of New York, Findlay, and the invaluable memoirs of Kerhallet; and valuable contributions to our knowledge of the laws of storms by Redfield, Reed, and Piddington, and of the currents and meteorology of the ocean generally, by Berghaus, Johnston, and Maury.—Thus far we have aimed to give a succinct account of ancient navigation, and a brief sketch of the progress of the art in modern times, just before and after Columbus had received in a dream, near the river Belem, "the keys which opened the gates to the great ocean." A scientific treatise on navigation does not come within the scope of our work; for this we refer the student to the professed teachers and books, and above all to Bowditch's "Navigator," a work which displays a singular power in the practical application of science to the uses and wants of every-day life. But without attempting a scientific treatise, we may give the general reader, in a very few words, a simple conception of the manner in which the place of a ship and her direction are ascertained upon the sea, under favorable circumstances. When the ship has left port, the reckoning is begun by observing the compass bearing and distance of some conspicuous object, as a lighthouse; and from the time of taking this bearing, the reckoning is continued by noting down (generally from hour to hour) the courses sailed, and the distance on each course. The reckoning is made up with these data, from the time of any independent determination of the ship's position, by considering the sum of the distances sailed in the N. and S. and E. and W. directions, and reducing the whole to one residual expression of the actual course and distance made good; this is done by means of a traverse table invented for the purpose. The reckoning here described is called dead reckoning, and is susceptible of error from so many disturbing causes, that it can only be depended upon for a short time. The navigator is provided with simple and easy methods of acquiring a knowledge of his position by independent observations of the sun, moon, and stars. We will look only at the first of these luminaries. The elements of position are the latitude and longitude. The determination of the latitude by the altitude of the sun at noon is readily understood, if it be remembered that if the sun moved always on the equator, the height it reached at noon at any place would depend merely on the distance of that place from the equator; but the sun being removed from the equator more or less, according to the season of the year, the navigator reduces it to that circle by applying the declination which is the astronomical expression in degrees and minutes for the interval of its separation. For this declination and all his astronomical data, he is indebted to the nautical almanac. The longitude is determined by chronometers. A chronometer is expected to keep the time of a certain place, as Greenwich or Paris; but as all chronometers are subject to a slight rate of loss or gain, this rate, and the error at starting, are applied at the moment of observation, to obtain the correct Greenwich time. The change of a degree in longitude is equivalent to a change of 4 minutes in time; the business of a navigator then is simply to compare his own time with the standard time, or the time at Greenwich; he obtains his own time through an observation of the sun when its altitude is changing rapidly. In the case of the determination of the longitude by the lunar method, the clock showing the Greenwich time is in the sky. Such observations are detached and disconnected. The navigator, if set down suddenly in the middle of the ocean, could determine his position as well as if he had proceeded there gradually, and known it from day to day.—We have selected single and plain cases only; but navigation, regarded as an art, is a copious and complex system of rules and practices, involving the use of numerous tables. Bowditch's "American Navigator" is a large octavo of nearly 800 pages, containing over 50 tables. Raper's "British Standard Navigator" (edition of 1849), approved by the admiralty, numbers 900 pages and 74 tables. Navigation, regarded as a science, requires, at the very least, a knowledge of spherical trigonometry and algebra in the mathematics, and of the apparent motions and phenomena of the principal heavenly bodies in astronomy. In addition to the above named authorities, see Peirce's "Plane and Spherical Trigonometry;" Chauvenet's "Trigonometry" and "Manual of Astronomy;" Francœur's *Astronomie pratique;* Boitard and Ansart-Deusy, *Navigation pratique;* Churchill's "Collection," introductory discourse; Dr. Wilson's

"Dissertation," in Robertson's "Elements;" and Humboldt's "Cosmos."

NAVIGATION LAWS, the name usually given to those enactments by which commercial states have endeavored to regulate the navigation which left or visited their ports, seeking always to favor and promote the commerce of the state enacting them. Such laws have existed in some form among all the maritime states of Europe for many centuries. The earliest systematic effort of this kind was probably that of Spain, 250 years ago, to preserve the exclusive possession of her very profitable commerce with her American colonies. In England, so far back as 1379, in the reign of Richard II., a statute was passed prohibiting the king's subjects from importing or exporting merchandise except in English ships. After this time sundry enactments were passed for a similar purpose. But the navigation laws of England, so called, properly began in Cromwell's time. Then the long pending conflict for the supremacy of the seas, between Holland and England, came to a crisis. The contest continued after the restoration of Charles II. But the fatal blow was given to Holland, and the superiority of England made certain, not so much by her naval victories as by the navigation laws, which, originating in the sagacity of Cromwell, and receiving then the form they have preserved until recent times, secured to England, first, the building of all her ships and their navigation by English seamen; next, the absolute monopoly of her colonial commerce; and finally, her full share of the general carrying trade of the world. For these purposes it was provided that no ship should be deemed a British ship that was not wholly built within the dominions of Great Britain, and wholly owned by British subjects, and navigated by a British commander and a crew of which at least three fourths were British subjects; next, that only British ships should carry any merchandise from any port of the British empire to any other; and thirdly, that no goods which were the growth, product, or manufacture of Asia, Africa, or America, should be imported into any of the ports of Great Britain, except in British ships, or in ships of the countries of which the goods were the production. The rigorous execution of these laws, and the consistent adherence to these principles are supposed by many to have done more than any other one cause in giving to Great Britain her enormous commerce. In order to ascertain what were British ships, and secure the execution of these laws, an admirable system of registry was adopted and remained in force in England during almost two centuries, with no substantial change. But in 1850 the principle of free trade was permitted to break down this monopoly to some extent. In the 12th and 13th Victoria it was enacted, first, that ships which are not of British build may become British ships by registry, if wholly owned by British subjects; and next, that any ship may bring to England any merchandise, excepting, however, that the king or queen of England, by order in council, may interpose such changes, restrictions, or prohibitions upon ships of any country as will put the ships of that country when in British ports on the same footing on which British ships stand in the ports of that country. —This subject was one of the earliest to which the American congress, under the present constitution, turned its attention; and in the winter of 1792–'3 acts were passed which were substantially the same as the English acts, but, so far as they differ, may be considered as more rigorous. These statutes are still in force, having never been materially altered. The maritime nations of continental Europe have their own systems of navigation laws, but these are not in any case quite so stringent as those of England and the United States. During the years which immediately followed the adoption of our constitution, England and France being constantly at war, we had almost the whole carrying trade of the world; and its vast profits laid the foundation of the wealth of this country, and built up its commercial marine with a rapidity unexampled in the history of the world. With all the conflicts of parties and of theories which are inevitable in a free country, we are not aware that any party, or indeed any individuals of influence, have objected to the principles of our navigation laws, or have proposed any changes in them, excepting such as were intended to simplify their operation and make them more effectual.

NAVIGATORS' or SAMOAN ISLANDS, a group in the S. Pacific, between lat. 13° 30′ and 14° 30′ S. and long. 168° and 173° W. There are 4 principal islands, viz.: Manua, Tutuila, Upolu, and Savaii; and 5 smaller: Rose island, Oloosinga, Ofoo, Manono, and Apolima, beside some islets; area of the whole estimated at 2,650 sq. m.; pop. about 56,000. Rose or Kordinkoff island, the easternmost, is low, small, uninhabited, and the resort of innumerable birds. Manua, or Omanooau, called Opoun by La Pérouse, rises in the form of a regular dome to the height of 2,500 feet; it is 16 m. in circumference, covered with luxuriant vegetation, and inhabited. Oloosinga is a narrow ledge of rocks, 3 m. in length, and 24 sq. m. in area, with a strip of land about 500 yards wide, on which grow breadfruit and cocoanut trees sufficient for all the wants of the natives. It has been made the residence of the chief of Manua since that island became desolated by the wars of the Christian converts with the unbelieving natives. The coral reef around this island is very curious, and consists of two regular shelves, the outer one from 50 to 60 feet wide, and the inner in some places measuring 140. From a distinct mark of high water, which was 20 feet above the ordinary sea tide, it appears to have been upheaved to that height. Ofoo, which lies to the W. of the island just described, is the Fanfoué of La Pérouse, and has an area of about 10 sq. m., with but few inhabitants. Tutuila is high, broken, of volcanic appearance, 17 m. long and 5 m. wide; area, 240 sq. m.; pop. 8,000. It is hilly, covered with luxuriant vegetation, and thickly settled round the shores, more particularly at the S. W. end, where the village of Leone is situated. This end is lower and more easily cultivated than the E., which is high and rugged; and the only communication between the two is by the sea shore, the hills being too difficult of ascent to pass over. There are many desirable ports or bays on the N. side, where ships may obtain supplies. The best port is Pago-Pago on the S. side, sometimes called Cuthbert's harbor, after the commander of the first ship that entered it. Its entrance is narrow and somewhat concealed, but easy of access; it is surrounded on all sides by inaccessible mural precipices from 800 to 1,000 feet high, with the lower parts of the rocks bare, but the upper densely clothed with vegetation. The village of Pago-Pago contains about 80 dwellings, a council house, and a church. Tutuila is the Maouna of Bougainville, and has acquired an ill reputation from the massacre of the comte de Langle, M. de Lamanon, the naturalist, and the rest of a boat's crew belonging to La Pérouse's expedition. This was provoked by one of the natives having been shot on board the Astrolabe. Subsequent experience has proved that the bad character given to these people in consequence does not really belong to them. Upolu, Ojalava, Oahtooha, Ojatava, or Opoloo, is 36 m. from Tutuila and about 40 m. long; area, 560 sq. m.; pop. 25,000. The E. portion is much more rugged than the W., and the island is of moderate height, rising gradually in a succession of ridges from a low shore, lined with a coral reef, passes through which lead to snug and convenient harbors. It has been the theatre of a great deal of missionary exertion. Apia, on the N. side, is the chief town of the island. It is pleasantly situated, has a neat church, and several good buildings. The harbor can accommodate about 6 moderately sized vessels; and pigs, poultry, excellent yams, fruit, and fire wood are abundant. It is the seat of a U. S. consul. Manono island, another missionary station, is enclosed within the sea reef of Upolu, at its W. end, and was called by La Pérouse Platte island; area, 9 sq. m.; pop. about 1,100. Apolima, about a mile distant from Manono, forms a sort of natural fortress; area, 7 sq. m.; pop. 500. It is evidently the crater of an extinct volcano, and is a ring of perpendicular cliffs, with an opening at a single point on the N. side, which affords an entrance for but one boat at a time to the basin within. Savaii, the westernmost and largest island of the group, is about 7 m. distant from Apolima. It was called Chatham island by Capt. Edwards, Shavié and Oteewhy by La Pérouse, and Pola by Kotzebue and others. It is about 40 m. in length and 20 m. in breadth; area, 700 sq. m.; pop. 20,000. The shore is low, and the ascent thence to the centre is gradual, except where the cones of a few extinct craters are seen. In the middle of the island a peak rises above 4,000 feet. Capt. Wilkes saw it at the distance of between 50 and 60 m. The interior of the island is rarely entered even by natives, and has never been penetrated by strangers. The island is said to produce the citron, nutmeg, indigo, coffee, and sugar cane. The bay of Mataatua, at the N., affords good anchorage. The town of Mataatua, beautifully situated in an extensive grove of cocoanut trees, contains about 400 houses and 2,000 people.—All of the Navigators' islands, with the exception of Rose, are of volcanic origin, and have remains of extinct craters, which are peculiarly noticeable at Apolima, Savaii, and on the ridge of Upolu, which is 2,570 feet above the sea. Their soil is rich, and is formed chiefly by the decomposition of volcanic rocks. The climate is moist, and vegetation is luxuriant. During the winter months there are long and heavy rains, attended at times with high wind sand gales from the N. Destructive hurricanes also occur. The woods in the interior of the islands are very thick; among them are tree ferns, a species of banian, pandanus, and several species of palms. A species of *cerbera*, bearing beautiful clusters of large and odorous white flowers, yields a quantity of white viscous sap. The breadfruit is the most abundant of all the trees, and grows to a large size; the vi apple, the cocoanut, the wild orange, lemon, banana, taro, paper mulberry, tacca (from which arrowroot is made), coffee, sweet potatoes, pineapples, yams, papaya, two species of wild nutmeg, rattans 90 feet in length, bamboos, wild ginger, and wild sugar cane are abundant; the last is used for thatching houses. Tobacco is grown in small quantities. Efforts are making to introduce the best mode of cultivating sugar cane, and manufacturing sugar. Great attention is paid to the cultivation of the yam. There are no traces among these islands of any native mammalia, except a species of bat (*pteropus ruficollis*); but swine, horned cattle, and horses have been introduced. Poultry of all descriptions is plentiful, and pigeons abound, but are considered sacred and not used as an article of food. There are few game birds, none of the hawk genus, but many singing birds.—Among the Polynesian islands the inhabitants of the Navigators' group rank, in point of personal appearance, second only to the Tongese. The women are not so well formed as the men, and rather inclined to be stout. The average height of the men is 5 feet 10 inches. Some of them have the eyes placed obliquely like the Chinese. They have but little beard, and their hair is strong, straight, and black. Those who have embraced Christianity shave their heads. Both sexes show great kindness and love for their children. They display the greatest ingenuity in the construction of their houses, which are built of the wood of the breadfruit tree, and thatched with wild sugar cane or pandanus leaves. There is no floor, but the ground is covered with small stones. On the pavement are laid coarse mats, with finer ones spread above, covering about half the area; when not immediately required these latter are rolled up. Mats are suspended about as screens; and at night each person is usually supplied with a mosquito curtain. Many whitewashed houses are now to be seen, for the natives have been taught the use of lime by the missionaries. There are some foreign carpenters on the islands. The food of the natives generally consists of breadfruit, bananas, taro, sweet potatoes, and yams; an abundant supply of fish is procured from the reefs; and they also eat the chestnut, vi apple, and arrow root, the fecula of which they now manufacture in some quantities. A large wood maggot, which is found on the trees, is looked upon as the most delicious food. The men do all the hard work, even the cookery. The women are held in much consideration; they take care of the house and children, prepare the food for cooking, do all the indoor work, and manufacture the mats and tapa. The people are cleanly in their habits, of a social disposition, and fond of travelling, often undertaking journeys around their islands that occupy 2 or 3 months, during which time they live on the hospitality of those whom they visit. A harbor duty of $5 is paid by all merchant ships to the chief of Apia. Some cocoanut oil is made. Since the French have taken possession of the Society islands, Apia has succeeded Papiete in Tahiti as a centre of English and American interests. The French have diverted to Tahiti a part of the commerce now rising in the Navigators' islands, but the chief part of the traffic is with Sydney.—The first attempt to introduce Christianity was made by the captain and crew of a vessel which was wrecked on the island of Upolu. They met with some success and built several churches. English missionaries arrived a few years later. They were from the first taken under the protection of the most powerful chiefs, and have established schools in many of the villages. A printing press has been set up at Upolu, a great portion of the Scriptures has been translated and published, and more than half the people have embraced Christianity. In addition to the Protestant missionaries, there are several Roman Catholic establishments. The ancient religion of the islanders acknowledged one great God, but they paid less worship to him than to some of their war gods. They had a god of earthquakes, a god who supported the earth, and gods of lightning, rain, and hurricanes, and also many inferior gods who watched over certain districts; and they had carved blocks of wood and stone, erected in memory of certain chiefs, whom they worshipped. The rule of the hereditary chiefs is acknowledged, and the distinction of the several classes well defined. There is no distinct name for the common people as a class, but the chiefs in speaking of them always apply some opprobrious epithet. The son of a low-born woman by a chief ranks as a chief, although he has no authority; and the son of a noble woman by a man of mean birth may be either a chief or a commoner. The lands are allotted and distinguished by known boundaries. The natural heir of the former owner succeeds to his lands, and is the feudal chief or leader in war, but his dependants are free to cultivate a portion of his land. Each district and town has its own government. An elderly chief generally presides, or is considered the head of the village, town, or district. The supreme power lies in the high chiefs of the Molo, or "conquering party." They assemble and determine the general laws, and may levy contributions, particularly on those they have conquered.

NAVY, a collective term for the vessels of war belonging to a sovereign or nation. The war fleets of the ancients, though often numerous, were insignificant when compared with those of the present day, in regard to the size of the ships, their powers of locomotion, and their aptitude for offence. The sea-going vessels of Phœnicia and Carthage, of Greece and Rome, were flat-bottomed barges, unable to live in a gale of wind; sea room, in a squall, was destruction to them; they crept along the coasts, casting anchor at night in some cove or creek. To cross over from Greece to Italy, or from Africa to Sicily, was a dangerous operation. The ships, unfit to carry the press of sail to which our modern men-of-war are accustomed, were provided with but little canvas; the oars were relied upon to propel them sluggishly through the waves. The compass had not yet been discovered; latitudes and longitudes were unknown; and landmarks and the pole star were the only guides in navigation. The implements for offensive warfare were equally inefficient. Bows and arrows, javelins, clumsy ballistas and catapults, were the only arms that could be used at a distance. No serious harm could be done to an enemy at sea until the two fighting ships came into actual contact. Thus, there were but two modes of naval fighting possible: to manœuvre so that the sharp, strong, iron-pointed prow of your own ship should be driven with full force against the enemy's broadside in order to run him down; or else to run on broadside to broadside, fasten the two ships together, and board the enemy at once. After the first Punic war, which destroyed the naval superiority of the Carthaginians, there is not a single naval engagement in ancient history offering the slightest professional interest, and Roman dominion soon put an end to the possibility of further naval contests in the Mediterranean.—The real birthplace of our modern navies is the German ocean. About the time when the great mass of the Teutonic tribes of central Europe rose to trample down the decaying Roman empire and to regenerate western Europe, their brethren on the northern shores, the Frisians, Saxons, Angles, Danes, and Northmen, began to take to the sea. Their vessels were firm, stout sea boats, with a prominent keel and sharp lines, relying mostly on sails alone, and not afraid to face a gale in the middle of that rough northern sea. It was with this class of vessels that the Anglo-Saxons passed from the mouths of the Elbe and Eider to the shores of Britain, and that the Northmen undertook their roving expeditions, extending to Constantinople on the one side and America on the other. With the construction of ships that dared cross the Atlantic, navigation underwent a complete revolution; and before the middle ages had passed away, the new sharp-bottomed sea boats had been adopted on all the coasts of Europe. The vessels in which the Northmen made their excursions were probably of no very large size, perhaps not exceeding 100 tons burden in any case, and carrying one or at the outside two masts, fore-and-aft rigged. For a long time both ship building and navigation appear to have remained stationary; during the whole of the middle ages vessels were small, and the bold spirit of the Northmen and the Frisians had passed away; whatever improvements were made were owing to Italians and Portuguese, who now became the boldest sailors. The Portuguese discovered the route by sea to India; two Italians in foreign service, Columbus and Cabot, were the first since the times of Leif the Northman to cross the Atlantic. Long sea voyages now became a necessity, and they required large ships; at the same time the necessity of arming vessels of war and even merchantmen with heavy artillery, equally tended to increase size and tonnage. The same causes which had produced standing armies on land, now produced standing navies afloat; and it is from this time only that we can properly speak of navies. The era of colonial enterprise which now opened for all seafaring nations, also witnessed the formation of large fleets of war to protect the newly formed colonies and their trade; and a period followed richer in naval struggles and more fruitful to the development of naval armaments than any that preceded it.— The foundation of the British navy was laid by Henry VII., who built the first ship called "The Great Harry." His successor formed a regular standing fleet, the property of the state, the largest ship of which was called the Henry Grace de Dieu. This vessel, the largest ever built up to that time, carried 80 guns, partly on two regular flush gun decks, partly on additional platforms both forward and astern. She was provided with 4 masts; her tonnage is variously stated at from 1,000 to 1,500. The whole of the British fleet, at the death of Henry VIII., consisted of about 50 sail, with an aggregate tonnage of 12,000, and manned by 8,000 sailors and marines. The large ships of the period were clumsy contrivances, deep-waisted, that is to say, provided with towering forecastles and poops, which rendered them exceedingly top-heavy. The next large ship we hear of is the Sovereign of the Seas, afterward called the Royal Sovereign, built in 1637. She is the first vessel of whose armament we get something like an accurate account. She had 3 flush decks, a forecastle, a half deck, a quarter deck, and a round house; on her lower deck she carried 30 guns, 42 and 32-pounders; 30 on her middle deck, 18 and 9-pounders; on her upper deck 26 lighter guns, probably 6 and 3-pounders. Beside these, she carried 20 chase guns and 26 guns on her forecastle and half deck. But on her regular home establishment this armament was reduced to 100 guns, the full complement being evidently too much for her. As to the smaller vessels, our information is very scanty. In 1651 the navy was classed in 6 rates; but beside them there continued to exist numerous classes of unrated ships, such as shallops, hulks, and later bombs, sloops, fire ships, and yachts. In 1677 we find a list of the whole English navy; according to which, the largest first rate three-decker carried 26 42-pdrs., 28 24-pdrs., 28 9-pdrs., 14 6-pdrs., and 4 3-pdrs.; and the smallest two-decker (fifth rate) carried 18 18-pdrs., 8 6-pdrs., and 4 4-pdrs., or 30 guns in all. The whole fleet consisted of 129 vessels. In 1714, we find 198 vessels; in 1727, 178; and in 1744, 128. Afterward, as the number of vessels increases, their size also gets larger, and the heaviness of the armament is augmented with the tonnage. The first English ship answering to our modern frigate was built by Sir Robert Dudley, as early as the end of the 16th century; but it was not till fully 80 years later that this class of ships, first used by the southern European nations, was generally adopted in the British navy. The particular fast-sailing qualities of frigates were little understood, for some time, in England. British ships were generally overgunned, so that their lower ports were but 3 feet from the water's edge, and could not be opened in a rough sea, and the sailing capacities of the vessels were also greatly impaired. Both the Spaniards and the French allowed more tonnage in proportion to the number of guns; the consequence was that their ships could carry heavier caliber and more stores, had more buoyancy, and were better sailers. The English frigates of the first half of the 18th century carried as many as 44 guns, of 9, 12, and a few of 18 lbs. caliber, with a tonnage of about 710. By 1780 frigates of 38 guns (mostly 18-pdrs.) and of 946 tons were built; the improvement here is obvious. The French frigates of the same epoch, with a similar armament, averaged 100 tons more. About the same time (the middle of the 18th century) the smaller men-of-war were more accurately classed in the modern way as corvettes, brigs, brigantines, and schooners. In 1779 a piece of ordnance was invented (probably by the British Gen. Melville) which changed to a great extent the armaments of most navies. It was a very short gun, with a large caliber, approaching in its shape a howitzer, but intended to throw solid shot, with small charges, at short ranges. From these guns being first manufactured by the Carron iron company, in Scotland, they were called carronades. The shot from this gun, useless at long ranges, had fearful effects upon timber at close quarters; from its reduced velocity (by the reduced charge), it made a larger hole, shattered the timber far more, and made numerous and more dangerous splinters. The comparative lightness of the guns, too, made it easy to find room for a few of them on the quarter deck and forecastle of vessels; and as early as 1781 there were 429 ships in the British navy provided with from 6 to 10 carronades over and above their regular complement of guns. In reading the accounts of naval engagements during the French and American wars, it should be borne in mind that the British never include the carronades in the number of guns given as a ship's complement; so that, for instance, a British frigate, stated to be a 36-gun frigate, may in reality have carried 42 or more guns, including the carronades. The superior weight of metal which the carronades gave to the British broadsides, helped to decide many an action fought at close quarters during the war of the French revolution. But after all, carronades were merely a makeshift to increase the strength of the comparatively small-sized men-of-war of 80 years ago. As soon as the size of the ships was increased for each rating, they were again cast aside, and are now comparatively superseded. In this particular, the construction of men-of-war, the French and Spaniards were decidedly ahead of the English. Their ships were larger and designed with far better lines than the British; their frigates especially were superior both in size and sailing qualities; and for many years the English frigates were copied from the French frigate Hebe, captured in 1782. In the same proportion as the vessels were lengthened, the high towering erections at the bow and stern, the forecastles, quarter decks, and poops, were reduced in height, the sailing qualities of the ships being increased thereby; so that gradually the comparatively elegant and swift-sailing lines of the present men-of-war came to be adopted. Instead of increasing the number of guns to these larger ships, the caliber was increased, and so were the weight and length of each gun, in order to admit of the use of full charges, and to receive the greatest point-blank range, so as to allow of the fire being opened at long distances. The small calibers below 24 lbs. disappeared from the larger vessels, and the remaining calibers were simplified, so as to have no more than two calibers, or at the outside three, on board of any one vessel. In ships of the line, the lower deck, being the strongest, was armed with guns of the same caliber as the upper decks, but of greater length and weight, in order to have at least one tier of guns available for the greatest possible range. —About 1820 the French Gen. Paixhans made an invention which has been of great importance in naval armaments. He constructed a gun of large caliber provided with a narrow chamber at the breech for the insertion of the powder, and began to fire hollow shot, at low elevations, from these "shell guns" (*canons obusiers*). Hitherto hollow shot had been fired against ships from howitzers in shore batteries only; though in Germany the practice of firing shell horizontally from short 24-lb. and even 12-lb. guns had been long in use against fortifications. The destructive effects of shells against the wooden sides of vessels were well known to Napoleon, who at Boulogne armed most of his gun boats for the expedition to England with howitzers, and laid it down as a rule that ships must be attacked with projectiles which will burst after hitting. Now, Paixhans' shell guns gave the means of arming ships with cannon which, by throwing their shells as nearly as possible horizontally, could be used at sea, ship against ship, with nearly the same probability of hitting as the old round-shot guns. The new gun was soon introduced into all navies, and, after undergoing various improvements, now constitutes an essential portion of the armament of all large men-of-war.—Shortly afterward the first attempts were made to apply steam to the propulsion of ships of war, as it had already been applied by Fulton to that of commercial vessels. The progress from the river steamer to the coasting steamer, and gradually to the ocean steamer, was slow; in the same ratio was the progress of war steamers retarded. As long as paddle boats were the only steamers in existence, this was justifiable. The paddles and part of the engine were exposed to the enemy's shot, and could be disabled by a single lucky hit; they took up the best portion of the broadside room of the vessel; and the weight of engine, paddles, and coal so much reduced the capacity of the ship, that a heavy armament of numerous long guns was entirely out of the question. A paddle steamer, therefore, could never be a ship of the line; but its superior speed might permit it to compete with frigates, which are expected to hover on the flanks of an enemy, to collect the fruits of a victory, or to cover a retreat. Now a frigate has just the size and armament which enable it to go fearlessly on any independent roving errand, while its superior sailing qualities enable it to withdraw in time from an unequal contest. The sailing qualities of any frigate were far outstripped by the steamer; but without a good armament the steamer could not fulfil its mission. Regular broadside fighting was out of the question; the number of guns must, for want of space, be always inferior to that of a sailing frigate. Here, if anywhere, the shell gun was in its place. The diminished number of guns on board a steam frigate was counterbalanced by their weight of metal and caliber. Originally these guns were intended to throw shells only, but recently they have been made so heavy, especially the chase guns (at the bow and stern of the vessel), that they can, with full charges, throw solid shot also to considerable distances. Moreover, the reduced number of guns admits of traversing platforms and railways being laid down on the deck, by means of which all or most of the guns can be brought to bear in almost any direction; a provision by which the strength of a steam frigate for an attack is nearly doubled, and a 20-gun steam frigate can bring at least as many guns into action as a 40-gun sailing frigate with but 18 working guns for each single broadside. Thus the large modern paddle-steamer frigate is a most formidable ship; the superior caliber and range of her guns, added to her velocity, enable her to cripple an opponent at a distance where scarcely any effective return of fire is possible to the sailing vessel; while the weight of her metal comes in with crushing power when it is to her advantage finally to force the fighting. Still the disadvantage remains that her whole motive force is exposed to direct fire, and offers a large object to aim at. For smaller vessels, corvettes, advice boats, and other light craft, not counting in a naval battle, but very useful throughout a campaign, steam was at once found of great advantage, and there were many such paddle boats constructed in most navies. It was the same with transport ships. Where landings were intended, steamers not only reduced the length of passage to a minimum, but permitted one to calculate to a moral certainty the time of arrival at any given place. The transport of bodies of troops was now made a matter of great simplicity, especially as every naval country had a large fleet of commercial steamers to fall back upon for transport vessels in case of necessity. It was on these considerations that Prince de Joinville, in his well known pamphlet, ventured to maintain that steam had altered the condition of naval warfare to such an extent as to render an invasion of England by France no longer an impossibility. Still, so long as the ships used for decisive action, the ships of the line, remained exclusively sailing vessels, the introduction of steam could work but little change in the conditions under which great naval battles were fought. The invention of the screw propeller was destined to supply the means of revolutionizing naval warfare entirely, and to transform all war fleets into steam fleets. It was fully 18 years after the invention of the screw before the first step in this direction was made. The French, always superior to the English in naval design and construction, were the first to do it. Finally in 1849 the French engineer Dupuy-Delôme constructed the first screw line-of-battle ship, the Napoléon, of 100 guns and 600 horse power. This ship was not intended to depend upon steam only; unlike the paddles, the screw allowed a ship to retain all the lines and rigging of a sailing vessel, and to be moved, at will, by steam alone, by sails alone, or by both combined. She could, therefore, always save her coal for emergencies by having recourse to her sails, and was thus far less dependent upon the proximity of coaling stations than the old paddle-wheel steamer. On this account, and because her steam power was too weak to give her the full speed of a paddle steamer, the Napoléon and other vessels of this class were called auxiliary steam vessels; since then, however, ships of the line have been constructed which have steam power enough to give them all the speed of which the screw propeller is capable. The success of the Napoléon soon caused screw ships of the line to be built both in France and England. The Russian war gave a new impulse to this radical change in naval construction; and when it was found that most strong-built ships of the line could, without too much difficulty, be fitted with a screw and engines, the transformation of all navies into steam fleets became only a matter of time. No large naval power now thinks of constructing any more large sailing vessels; almost all ships newly laid down are screw steamers, excepting the few paddle steamers which for certain purposes are still required; and before 1870 sailing ships of war will be almost as completely antiquated as the spinning wheel and the smooth-bore musket are now.—The Crimean war called into existence two new naval constructions. The first of these is the steam gun boat or mortar boat, originally constructed by the English for the contemplated attack on Cronstadt; it is a small vessel drawing from 4 to 7 feet of water, and armed with one or two heavy long-range guns or a heavy mortar; the former to be used in shallow and intricate waters generally, the latter in the bombardment, from a long distance, of fortified naval arsenals. They answered exceedingly well, and will no doubt play an important part in future naval campaigns. The mortar boat, as proved at Sveaborg, totally alters the relations of attack and defence between fortresses and ships, by giving the ships that power of bombarding the former with impunity which they never before possessed; at 8,000 yards, from which the shells of the mortar boats can hit an object as large as a town, they are themselves quite secure from their smallness of surface. The gun boats, on the contrary, when acting in concert with coast batteries, will strengthen the defence, and will also provide naval warfare with those light skirmishers which were hitherto wanting to it. The second innovation is the iron-sided, shot-proof floating batteries, first constructed by the French, for the attack of coast defences. They were tried at Kinburn only, and their success, even against the rickety parapets and rusty cannon of that little place, was not so very signal. Still, the French appeared to be so well satisfied with them, that they have gone on ever since experimenting upon steel-plated vessels. They have constructed gun boats with a kind of shot-proof steel parapet on the forecastle, which shelters the gun and its crew; but if the floating batteries were unwieldy and had to be towed, these gun boats always had their heads in the water and were not at all seaworthy. They have however produced a steel-plated steam frigate called La Gloire, which is said to be shot-proof, of very good speed, and quite capable of living in a gale. The most exaggerated statements are made with regard to the probable revolution these shot-proof frigates will create in naval warfare. We are told that ships of the line are antiquated, and that the power to decide great naval actions has passed over to these frigates with a single battery of guns, covered in shot-proof on all sides, against which no wooden three-decker can stand. This is not the place to argue these questions; but we may observe that it is far easier to invent and put on board ship rifled artillery heavy enough to smash iron or steel plates, than it is to construct vessels cased with metal thick enough to withstand the shot or shell from these guns. As to the Gloire, it is not certain after all that she is fit to live in a gale, and from her incapacity for holding coal it is said that she cannot keep the sea under steam for more than 8 days. What her British competitor, the Warrior, will do, remains to be seen. No doubt, by reducing the armament and coal, and by altering the mode of construction, it may be possible to render a ship entirely shot-proof at long and medium ranges, and a fair steamer; but in an age when the science of artillery makes such rapid strides, it is very doubtful whether such ships will be worth constructing in the long run.—The revolution in artillery which the rifled gun is now effecting appears to be a far more important matter for naval warfare than any thing that can be effected by steel-plated ships. Every rifled gun that deserves the name gives such a precision at long ranges that the ancient inefficiency of naval firing at such ranges appears to be fast becoming a matter of the past. Morever, the rifled cannon, by admitting elongated shot and reduced charges, allows a considerable reduction in the bore and weight of broadside guns; or otherwise, the bore remaining the same, gives results far greater. The elongated shot from a 56 cwt. rifled 32-pounder will surpass the round shot from a 113 cwt. smooth-bore 10-inch gun, not only in weight, but also in penetration, range, and precision. The power of attack of every vessel is at least tripled if it be armed with rifled ordnance. Moreover, the great desideratum has always been to invent a useful percussion shell which should explode the very moment it penetrates a ship's side. The rotation of round shot has rendered this impracticable; the percussion fuze was not always in the proper position when the shell struck, and then it did not go off. But an elongated shot from a rifled cannon, rotating round its longitudinal axis, must always strike head foremost; and a simple percussion cap on the fuze head bursts the shell the moment it enters the ship's side. It is not probable that any steel-clad ship yet invented can brave two such broadsides from a two-decker with impunity; not to speak of the shells which enter the ports and must explode between decks. Rifled ordnance must to a great degree put a stop to such close-fought actions as were those in which carronades could be useful; manœuvring will once more regain the ascendant; and as steam now makes the contending vessels independent of wind and tide, naval warfare will in future much more approach the method and be subject to the tactics of land battles.—The vessels of war of which modern navies are composed are classed in various ratings, from first to sixth rates; but as these ratings are both variable and arbitrary, it will be better to class them in the common way as ships of the line, frigates, sloops, brigs, schooners, &c. Ships of the line are the largest men-of-war afloat, destined to form the line of battle in a general action, and to decide the struggle by the weight of metal thrown into the enemy's ships. They are either 3-deckers or 2-deckers; that is to say, they have either 3 or 2 covered decks armed with guns. These decks are called the lower, middle, and main or upper deck. The upper deck, which was formerly covered in at the quarter deck and forecastle only, is now covered in by a continuous open deck from stem to stern. This open deck, which is still called the quarter deck and forecastle (the position amidships being called the gangway), also carries artillery, mostly carronades; so that in reality a 2-decker carries 3, and a 3-decker 4 tiers of guns. The heaviest guns are, of course, placed on the lower deck; and the guns become lighter in proportion as the batteries are more elevated above the water. The caliber being mostly the same, this is obtained by reducing the weight of the guns themselves, in consequence of which those on the upper decks can only stand reduced charges, which implies that they can be used only at shorter ranges. The only exception to this rule is in the case of chase guns, which are placed at the bow and stern of a ship, and which, even if placed on the forecastle or quarter deck, are still as long and heavy as possible, as they are required to act at the longest ranges practicable. Thus, the bow and stern guns of English ships of the line are composed either of 8 or 10-inch shell guns, or of 56-pdr. (bore 7.7 inches) or 68-pdr. (bore 8.13 inches) solid shot guns, one of which is placed on the forecastle on a traversing platform. There are in the English navy generally 6 stern and 5 bow guns to a first rate; the remaining armament of such a ship is as follows:

Position.	Description.	W'ght.	Length.	No.
Lower deck......	8-inch shell guns.	65 cwt.	9 ft. 0 in.	4
" "	32-pounder guns.	56 "	9 6	28
Middle deck......	8-inch shell guns.	65 "	9 0	2
" "	32-pounder guns.	50 "	9 0	32
Upper deck......	" "	42 "	8 0	34
Forecastle and quarter deck.	" "	45 "	8 6	6
	" carronades	17 "	4 0	14
Total..........	....	....	....	120

The armament of the smaller ratings of vessels of the line is arranged upon the same principle. For the sake of comparison, we also give that of a French first rate, viz.: lower deck, 32 long 30-lb. guns; middle deck, 4 80-lb. shell guns, and 30 short 30-lb. guns; upper deck, 34 30-lb. shell guns; forecastle and quarter deck, 4 30-lb. shell guns, and 16 30-lb. carronades; in all, 120 guns. The French 80-lb. shell gun has a larger bore than the 8-inch English gun by 0.3 inch; the 30-lb. shell gun and the 30-lb. gun have a slightly larger bore than the English 32-pdr., so that the advantage of weight of metal would lie with the French. The smallest ship of the line now carries 72 guns; the largest frigate carries 61. A frigate is a ship with only one covered deck carrying guns, and another open deck above it (forecastle and quarter deck) which is equally provided with guns. The armament, in the English service, is generally of 30 guns (either all shell guns or part shell guns and part long 32-pdrs.) on the gun deck, and 30 short 32-pdrs. on the forecastle and quarter deck, with a heavy pivot gun on a traversing platform at the bow. Frigates being mostly sent on detached service, where they are always likely to become engaged single-handed against hostile frigates sent on the same errand, it has been a great point with most naval nations to make them as large and powerful as possible. In no class of vessels is the increase in size so remarkable as in this. The United States, requiring a cheap navy strong enough to enforce respect, were the first to see the great advantage to be drawn from a fleet of large frigates, each of them superior to any frigate which other nations could bring against it. The superiority of the American ship builders in producing swift vessels was also taken advantage of, and the last war against England (1812–'14) showed in many well contested engagements what formidable antagonists these American frigates were. Up to the present day the U. S. frigates are considered models of this class of vessels, although the difference in size when compared with other navies is not by far so marked as it was 30 or 40 years ago. The next class of men-of-war are called corvettes. They have but one tier of guns, placed on an open deck; but the larger class are provided with a forecastle and quarter deck (not connected, however, by a continuous deck amidships), where they carry a few guns more. Such corvettes, therefore, almost correspond to what a frigate was 80 years ago, before the two elevated extremities of the vessel were connected by a flush deck. These corvettes are still strong enough to carry the same caliber of guns as the larger vessels. They also carry 3 masts, all square-rigged. Of smaller vessels, brigs and schooners carry from 20 guns to 6. They have but two masts, square-rigged in brigs, fore-and-aft rigged in schooners. The caliber of their guns is necessarily smaller than that of the larger ships, and does not generally exceed 18 or 24-pdrs going down as low as 12 and 9-pdrs. Vessels of this small power of offence cannot be sent where serious resistance is anticipated. In European waters they are becoming generally superseded by small steamers, and they can be of actual service only on such coasts as those of South America, China, &c., where they have to meet powerless antagonists, and where they merely serve to represent the flag of a powerful naval nation. The armaments given above are merely those adopted at present, but they will undoubtedly be changed in every respect during the next 10 years by the general adoption of rifled ship guns.—The origin of the navy of the United States may be said to date from Oct. 13, 1775, when congress authorized the equipment of two cruisers mounting respectively 10 and 14 guns. Before the end of that year, 15 more vessels, of from 20 to 36 guns, were authorized. These vessels were built in the colonies of New England, and in New York, Pennsylvania, and Maryland. On Dec. 22, 1775, congress appointed a corps of naval officers, of whom Esek Hopkins was commander-in-chief, and John Paul Jones was a lieutenant. The affairs of the navy were at this time intrusted to the management of a "marine committee." In Oct. 1776, the navy consisted of 26 vessels, mounting 536 guns, and its services throughout the revolutionary war were most important. In 1778 several vessels of considerable force were built or purchased for the navy; among these was the celebrated Alliance, a frigate of 32 guns. The first vessel of war taken by an American cruiser in battle was the Edward, which was captured by the Lexington, Capt. John Barry, on April 17, 1777. On March 27, 1794, congress authorized the construction of 6 frigates, and it was fortunately decided that 3 of them should be of a very heavy class; the Constitution is one of these ships. This step laid the foundation of the present navy, the vessels of the revolution having been disposed of at the end of that contest, in 1783. In 1798 the navy department was formally created, and Benjamin Stoddart appointed the first secretary. At this time, urged by the depredations of France upon our commerce, and warned by the conduct of the Barbary powers, congress authorized a considerable increase of the navy, which the president was empowered to use for defence against the French. In the quasi war with France which resulted, our naval successes were marked. Upon the accession to office of Mr. Jefferson in 1801, the navy was reduced. In the same year war was declared by Tripoli against the United States, and continued until 1805. The naval achievements of these 4 years gave a high character to the American service. In 1803 the "gun-boat system" was inaugurated. In 1806 and 1807 the number of gun boats was rapidly increased, congress having authorized the construction of 257 of these vessels; they were afterward found, however, to be expensive and inefficient, and the system was soon abandoned. During the war of 1812 the navy obtained a vast increase of reputation. The superior force of the frigates of 1794 was evinced in their almost uniform success in action with an enemy hitherto deemed invincible on the ocean. The policy of maintaining an efficient navy was now considered settled; and although, compared with the navies of other nations, that of the United States is very small, the aim has always been to keep pace with the improvements of the day, and to havé none but the most efficient ships of their class in the service. The navy of the United States now comprises 47 sailing vessels and 36 steamers; of the latter, 6 are screw frigates of the very heaviest class.

NAXOS, or Naxia, an island of Greece, and the largest of the Cyclades, in the Ægæan sea, 6 m. E. from Paros, between lat. 36° 45′ and 37° 15′ N., and long. 25° 20′ and 25° 35′ E.; length about 18 m., breadth 12 m.; area, 170 sq. m.; pop. about 20,000, all members of the Greek church, except about 400 Roman Catholics, descendants of settlers in the times of the dukes. The surface is diversified and picturesque; the plains and valleys are remarkable for their fertility. In the centre of the island is the mountain anciently called Drius, now Zia or Dia, 3,000 feet high, from which 22 islands and the Asiatic continent are visible. The vine, olives, oranges, iron, marble, &c., are produced. The wine of Naxos, called Bacchus wine, was celebrated. Naxos furnishes the bulk of the emery used in trade, the production in 1855 amounting to 2,000 tons. The most interesting curiosity is an unfinished colossal statue of Apollo, lying in an old marble quarry near the N. extremity of the island. Naxos contains about 40 small towns, and has a Greek and a Roman Catholic bishop, and a Lazarist convent. Naxos, the capital, stands on the W. coast; pop. about 4,000. The streets are narrow, and the ducal palace is in ruins, but the white houses present a cheerful appearance.—This island in antiquity was sometimes called Strongyle from its circular form, sometimes Dionysias from the prevalence there of the worship of Dionysus (Bacchus), and frequently Dia in honor of Zeus. It was inhabited in early times chiefly by Ionians from Attica. It was conquered by Pisistratus, and in 490 B. C. by the Persians. After the battle of Salamis it regained its independence, but 9 years later became a dependency of Athens, and after many vicissitudes of the Byzantine empire. In A. D. 1207 it became the seat of a duchy, comprising several other islands, established by the Venetian Marco Sanudo. In 1566 the island was taken by the Turks; it now belongs to Greece.

NAYLOR, James, an English fanatic, born in Ardsley, Yorkshire, about 1616, died in Huntingdonshire in 1660. In 1642, when the civil war broke out, he took up arms for the parliament. After the overthrow of the royalist party, he left the army, became a follower of George Fox, and soon afterward appeared as an itinerant preacher. He fancied that he was inspired, that he was set as a sign of Christ's coming, and that the spirit of the Saviour really dwelt in him. These opinions were repudiated by the great body of his denomination, and caused the parliament in 1656 to condemn him to stand with his head in the pillory for two hours, be whipped at the cart's tail from Palace yard to the old exchange, have his tongue bored with a red-hot iron, and his forehead branded with the letter B, as the stigma of a blasphemer. The execution of this sentence was borne by Naylor with the fortitude of a martyr; but the solitude of a prison, to which he was subsequently doomed for two years, cooled his enthusiasm, and he acknowledged at length that his mind had been led astray by spiritual pride and the devil. After obtaining his liberation, he hastened homeward, but expired on the way. Naylor's theological essays, epistles, &c., were published in London in 1716. "Memoirs of the Life, Ministry, Trial, and Sufferings of James Naylor," appeared in London in 1719.

NAZAREANS. See Christians of St. John.

NAZARENE, a term of contempt applied to Christ and his first disciples, from Nazareth, the place of his residence, a poor town in the despised region of Galilee. There was a sect of heretics called Nazarenes in the 2d century, who insisted on the necessity of combining the Mosaical ceremonies with the religion of Christ.

NAZARETH, a village of Northampton co., Penn., 59 m. N. from Philadelphia and 9 m. N. W. from Easton; pop. in 1850, 408. It was founded by George Whitefield in 1739, who, before completing an edifice in course of erection intended as a school for the instruction of African children, sold it to Count Zinzendorf, who finished it for the use of the Moravians. The village contains a large church and a Moravian academy for boys.

NAZARETH (now *Nasirah*), a town of Asiatic Turkey, in Palestine, 20 m. S. S. E. from Acre, and 65 m. N. from Jerusalem; pop. estimated by Dr. Robinson at 3,120, including 680 Moslems and 1,040 of the Greek church, the rest being Greek Catholics, Latins, and Maronites. It is beautifully situated in a valley surrounded on all sides by hills. The houses are mostly of stone, well built, and flat-roofed. The population has a more prosperous appearance than in any other part of Palestine, and the women of Nazareth are famous for their beauty. The principal edifices are the Latin convent, the finest in Palestine, the Latin church of the Annunciation, the Casa Nuova, or Christian caravansary, a Mohammedan mosque, and a khan. Nazareth is celebrated for having been the residence of Christ during the first 30 years of his life.

NAZARITE, under the Levitical law, a person who for a certain period was bound by a vow to keep his hair unshorn, and to abstain from the use of the grape and every other kind of strong drink and from contact with the dead. Samson was a Nazarite.

NEAL, Alice Bradley. See Haven.

NEAL, Daniel, an English divine and historian, born in London, Dec. 14, 1678, died in Bath in April, 1743. He was educated at merchant tailors' school and at a dissenting academy, and spent 3 years at the universities of Utrecht and Leyden. Returning to England in 1703, he obtained a license as a preacher, and became assistant to Dr. Singleton, pastor of an Independent congregation in Aldersgate street. In 1706 he succeeded Dr. Singleton as pastor. His principal works are: "History of New England" (2 vols. 8vo., London, 1720), and "History of the Puritans" (4 vols. 8vo., London, 1732–'8). The best edition of the latter is that of Toulmin, to which is prefixed a life of the author (6 vols. 8vo., London, 1793; reprinted in 3 vols. 8vo., London, 1837). He had a reputation as a preacher, and several of his sermons have been published.

NEAL, John, an American author and poet, born in Falmouth, now Portland, Me., Aug. 25, 1793. His parents were members of the society of Friends, with which he also remained connected until the age of 25, when for a variety of reasons, the principal one being his inability to "live peaceably with all men," he received his formal dismissal. When but a month old he lost his father, but by the exertions of his mother, who kept a school, he succeeded in getting a tolerable elementary education. About the age of 12 he commenced a business career in Portland as a shop boy; a few years later he taught drawing and penmanship in the principal towns of Maine; in 1814–'15 he was a dry goods retailer and jobber in Boston and New York, and in the latter year established himself in Baltimore as a wholesale dealer in partnership with John Pierpont. In 1816 the concern failed, and Neal, determined to have nothing more to do with trade, commenced the study of the law. He read through Professor Hoffman's course of legal study, intended to embrace a period of several years, in a twelvemonth, beside attending lectures, studying 6 or 8 languages, and occupying himself with a variety of literary enterprises. Although his experience in literary composition had been confined to 2 or 3 fugitive pieces contributed to the periodical press, he determined to support himself by his pen until established in the practice of the law, and in 1816 produced a review of the works of Byron, written it is said in 4 days, which appeared from month to month until completed in the "Portico," a literary magazine published in Baltimore. He continued to write for this periodical for several years, and finally, to use his own words, "knocked it on the head, it is thought, by an article on free agency." In 1817 he published his first novel, "Keep Cool" (2 vols., Baltimore), originally called "Judge Not," followed the next year by "The Battle of Niagara, Goldau, and other Poems, by Jehu O'Cataract," a name given him by the Delphian club of Baltimore, of which he was a member, and which was dropped in the 2d edition of the volume. In 1819 appeared "Otho, or the Bastard," a 5 act tragedy; and about the same time he assisted Dr. Watkins in writing the "History of the American Revolution by Paul Allen." Admitted to the Maryland bar in 1819, he entered upon practice, but abated in no respect his literary labors. Beside preparing an index for "Niles's Register," then amounting to upward of 50 8vo. volumes, which Mr. Niles referred to as "probably the most laborious work of the kind that ever appeared in any country," he published in 1823 not less than 4 novels, "Seventy-Six, a Romance of the Revolution," "Logan," "Randolph," and "Errata," the first two of which were republished in London. They were severally written, according to his own account, in periods of from 27 to 39 days. "Randolph" contained notices of prominent public characters of the day, including William Pinkney, whose son Edward C. Pinkney, considering his father to have been maligned, challenged Neal, and, upon the refusal of the latter to fight, posted him as a "craven." Neal, in a postcript to "Errata," printed the correspondence, and turned the whole affair to ridicule. Encouraged by the success which some of his productions met abroad, he determined in the latter part of 1823 to try his fortune in England; and transferring his legal business to others, he arrived in that country in Jan. 1824. He soon procured an engagement to write for "Blackwood's Magazine," his earliest contributions to which were "Sketches of the five American Presidents and the five Candidates for the Presidency;" and he subsequently contributed to this and other periodicals, including the "London Magazine," the "European," the "New Monthly Magazine," the "Westminster Review," the "European Quarterly," and others, numerous articles on the social and political condition of the United States, beside tales and miscellanies. His literary efforts attracted the notice of Jeremy Bentham, who invited him to take up his residence in his house, of which he remained an inmate during a considerable portion of his career in England. In 1827 he went to Paris, and after a brief residence on the continent returned in the same year to America. He had made arrangements for entering upon the practice of the law in New York, but, to use his own language, "was badgered and provoked in one way and another, by mobbing, misrepresentation, handbills, and foolish threats, into settling down for life in Portland," where he at once became a laborious student, an active contributor to various quarterlies, magazines, and newspapers, a practitioner in the courts of law, and a public lecturer; "and that no superfluous energy might run to waste, established gymnasiums and gave lessons to large classes in sparring and fencing." This life he continued until 1850, when he gave up his profession. His chief productions, in addition to those mentioned, are: "Brother Jonathan"

(3 vols., London and Edinburgh, 1825); "Rachel Dyer" (Portland, 1828), originally written for "Blackwood," but withdrawn by the author and enlarged; "Bentham's Morals and Legislation" (Boston, 1830); "Authorship, a Tale" (Boston, 1833); "The Down Easters" (2 vols., New York, 1833); "One Word More" (Boston and New York, 1854), essays of a religious character; and "True Womanhood, a Tale" (Boston, 1859). He is now engaged in writing an autobiography, and in revising his earlier works, which have long been out of print, for republication.

NEAL, Joseph C., an American humorist, born in Greenland, N. H., Feb. 3, 1807, died in Philadelphia, July 3, 1848. When he was two years old his father died, and the family removed to Philadelphia. Mr. Neal resided several years in Pottsville, but in 1831 became the editor of the "Pennsylvanian," a newspaper of Philadelphia, and remained in that position 10 years, when, his health failing, he was compelled to go abroad. After travelling in Europe and Africa, he returned in 1842 and resumed his old occupation, but finally retired from the "Pennsylvanian" in 1844, and established a weekly literary journal, called "Neal's Saturday Gazette," which was exceedingly successful. His first humorous compositions were the "City Worthies," a series of sketches which appeared in the "Pennsylvanian." In 1837 he published "Charcoal Sketches, or Scenes in a Metropolis," reprinted in London under the auspices of Mr. Dickens. In 1844 he published "Peter Ploddy and other Oddities;" and subsequently a new series of "Charcoal Sketches" appeared in the "Saturday Gazette." He was the editor of that journal when he died.

NEANDER, Johann August Wilhelm, a German divine and church historian, born in Göttingen, Jan. 17, 1789, died in Berlin, July 14, 1850. His original name before his conversion to Christianity was David Mendel. His father was a Jewish peddler; his mother, who was afterward separated from her husband, was an intelligent and pious Jewess, a relative of the philosopher Mendelssohn and of Dr. Stieglitz of Hanover. She bore 5 children, 2 of whom died insane. Soon after the birth of David, her youngest child, she removed with him to Hamburg, which Neander ever afterward loved as his native city, and to which he sent a contribution of 1,000 Prussian dollars after the great fire in 1842 for the relief of the sufferers. He was reared in great poverty, but by the assistance of friends, especially of Dr. Stieglitz, he was enabled to satisfy his desire for a liberal education in the Johanneum of Hamburg under the direction of Johann Gurlitt. He soon attracted the notice of his teachers by his talent and industry, as well as by the oddity of his appearance and the awkwardness of his manner. He looked like a simpleton, and was the source of much amusement to his fellow students; but he took no notice of it, and lived in a world of abstraction. He associated especially with Varnhagen von Ense, Chamisso the poet, Wilhelm Neumann, Noodt, and Sieveking, and formed with them a literary association under the name of the "Polar Star" (*το του πολου αστρον*). He was fascinated by the study of Plato and Plutarch, and the romantic school of poetry which then arose under the lead of the brothers Schlegel, Tieck, and Novalis. He passed in his mind through the double process of history preparatory to Christianity, the Jewish religion and the Greek philosophy, and was thus admirably trained for the great work of his life as the historian of the Christian religion. In 1799 Schleiermacher issued his "Discourses on Religion," which marked an epoch for Germany in turning the tide of prevailing scepticism. They made a powerful and lasting impression on Neander, and conducted him to the threshold of the Christian revelation. The singular fermentation of his mind produced by these various influences is reflected in an essay from his pen addressed to a pastor of Hamburg before his baptism, and first published after his death by Kling in Ullmann's *Studien und Kritiken* for 1851. Thus fully prepared mentally, he publicly renounced Judaism, and was baptized in 1806, adopting the name of Johann August Wilhelm Neander (Gr. *νεος ανηρ*, new man), from his teacher Johann Gurlitt, and his friends August Varnhagen and Wilhelm Neumann, who assisted in the ceremony as sponsors. His brothers and sisters, and finally also his mother, gradually followed his example. Henceforth he consecrated himself to theology, and studied it with the greatest zeal and success at the university of Halle, where Schleiermacher then taught, and of Göttingen, where Planck was then at the height of his fame as an ecclesiastical historian. After completing his course he returned to Hamburg to enter the ministry, and preached his first sermon on John i. 1 *et seq.* But his peculiar talents evidently called him to the academical chair. In 1811 he began to deliver theological lectures in Heidelberg; thence he was called in 1813 to the newly founded university of Berlin as professor of church history. He soon became one of the greatest theological celebrities in that famous metropolis of German learning, and continued to labor there as teacher and writer with very little interruption till his death. His last words, addressed to his sister, who attended to his wants (for he never married), were: "I am weary, let us go home!"—In his outward appearance he was of middle size and slender frame. He had strongly marked Jewish features, bushy eyebrows, and weak sight (he was at last blind). He dressed carelessly, with jack-boots and a shabby hat. In the lecture room he presented a most singular appearance; "playing with a goose quill which his amanuensis always provided for him, constantly crossing and recrossing his feet, bent forward, frequently sinking his head to discharge a morbid flow of spittle, and then again suddenly throwing it on high, especially when roused to polemic zeal against pantheism and dead formalism, at times fairly threatening to overturn the desk, and yet all the while pouring forth with the greatest earnestness and enthusiasm an uninterrupted flow of profound learning and thought from the deep and pure fountain of his inner life, and thus with all his eccentricities at once commanding the veneration and confidence of every hearer." He was universally esteemed for his absolute sincerity, humble piety, unaffected benevolence, and singular elevation above the charms and temptations of the world. He was a giant in learning and a child in simplicity of heart. To students he was like a father, and delighted to collect them around his modest table, together with strangers who came to hear him from all parts of the world. Many American students will ever gratefully remember his kindness.—He is, next to Schleiermacher, the principal regenerator of modern German theology after the reign of rationalism. His principle was: *Pectus est quod theologum facit.* There is hardly a distinguished living Protestant divine who does not owe much to the influence of Neander. He lectured on nearly all branches of exegetical and systematic theology, but especially on history. As an author he won the honorable title of "father of church history," by infusing a new spirit into this branch of study, and opening new avenues of thought. He treated history as a book of life for edification as well as instruction, and as a continuous commentary on the twin parables of the mustard seed and the leaven. His chief force lies in his development of Christian life and doctrine, while in the departments of government, policy, and art he is defective. His style, too, is rather monotonous, diffuse, and involved, although animated by a certain warmth of feeling. His great work, on which his reputation mainly rests, is the "General History of the Christian Religion and Church," from the close of the apostolic age to the council of Basel in 1430 (11 vols., 1828-'50; translated into English, in part by Rose, and in full by Prof. Torrey, and several times reprinted in Boston, Edinburgh, and London). He also wrote a number of valuable historical monographs, on Julian the Apostate (1812); St. Bernard (1813); Gnosticism (1818); St. Chrysostom (1822); Tertullian (1825); "History of the Apostolic Age" (1832); "Life of Christ," in refutation of Strauss (1837); and "Memorials of Christian Life" (3 vols., 3d ed. 1845). Most of these works have been translated into English. To these must be added a few popular practical commentaries on the Philippians, on the Epistles of St. James, and the first Epistle of St. John (translated by Mrs. H. C. Conant). His minor essays were collected by Jacobi (Berlin, 1851). Since his death have been published his lectures on the "History of Christian Doctrine" (1857), and on the "Epistles to the Corinthians" (1859); and others are still preparing for publication by several of his pupils. His library was purchased by the university of Rochester, N. Y.

NEANDER, Michael, a German philologist and educator, born in Sohrau, Silesia, in 1525, died in Ilfeld, Hanover, April 26, 1595. His name was Neumann, which he Græcized into Neander. In 1542 he entered the university of Wittenberg, and was a pupil of Melanchthon. In 1547, in common with all the professors and students of the university, he quitted Wittenberg after the battle of Mühlberg, and through Melanchthon's recommendation received the appointment of teacher in the school of Nordhausen. In 1550 he was called to the rectorship of the cloister school of Ilfeld, in Hanover. Here he taught for 45 years, with from 40 to 50 scholars, some of whom were afterward among the foremost men of their time. He published 39 works, and left 14 more in MS. A majority of these were text books on a variety of subjects, including grammars of several languages, editions of Greek authors, and works on natural philosophy, geography, &c., many of which were in good repute for nearly a century after his death.

NEARCHUS, a Greek admiral, who flourished in the 4th century B. C. He was a native of Crete, but obtained a prominent position at the court of Macedon during the life of Philip. Having participated in the intrigues of Alexander against his father, he was banished, with Ptolemy, Harpalus, and others. On the death of Philip he was recalled, and after the conquest of the maritime provinces of Asia was made governor of Lycia and the regions immediately S. of Taurus. In 329 B. C. he joined Alexander in Bactria with a reënforcement of Greek mercenaries. During the Indian expedition he was intrusted with the chief command of the fleet which the conqueror had caused to be constructed on the banks of the Hydaspes; and when the armament arrived down the Indus at the ocean, he offered to conduct the ships to the shores of Persia, "if the sea were navigable, and the enterprise feasible for mortal man." He began his voyage Sept. 21, 325, and after encountering numberless dangers, and contending incessantly with the ignorance and terrors of his seamen, reached the mouth of the Anamis, Dec. 9, 5 days' journey from which Alexander was then encamped. The voyage was not however yet completed, though its chief dangers were over. Sailing along the N. shore of the Persian gulf to the Pasitigris, Nearchus ascended that river and arrived at Susa in Feb. 324. Alexander had already arrived there, and bestowed upon the admiral, beside other marks of favor, a crown of gold, and the daughter of the Rhodian Mentor in marriage. After the death of Alexander, Nearchus was restored to the government of his former provinces, which he was content to hold as the dependant of Antigonus. The latest mention of him in history is in 314, when Antigonus appointed him to attend his son Demetrius Poliorcetes as a counsellor, that prince being then first intrusted with the command of an army. Nearchus is said to have written an account of his voyage, the substance of which has been probably preserved in the *Indica* of Arrian.

NEBRASKA, an organized territory of the United States, bounded N. by the British possessions, the dividing line following the parallel of lat. 49° N.; E. by Dacotah, Iowa, and Missouri, from which it is separated by the White Earth and Missouri rivers; S. by the 40th parallel, dividing it from Kansas; and W. by the summit of the Rocky mountains, where it meets Utah, Oregon, and Washington territory. The length N. and S. is 620 m.; average breadth 541 m.; area estimated at 335,882 sq. m.; pop. in 1854, 2,732; in 1855, 4,565; in 1860, 28,903. Only a small part of the territory has been divided into counties, or is inhabited by whites. The population is mostly in a tier of settled counties fronting on the Missouri, from Kansas to the Niobrarah, a distance N. and S. of about 200 m.; and in another tier along the Platte from its mouth 300 m. westward, by the course of the river. There are also a few counties with a small population immediately back of those on the Missouri. The following 40 counties have been established, viz.: Buffalo, Butler, Burt, Calhoun, Cass, Cedar, Clay, Cuming, Dakota, Dawson, Dixon, Dodge, Douglas, Fillmore, Gage, Greene, Hall, Izard, Jefferson, Johnson, Jones, Kearney, Lancaster, L'eau-qui-court, Monroe, Morton, Nemaha, Nicholls, Otoe, Pawnee, Platte, Polk, Richardson, Saline, Sarpy, Shorter, Washington, West, Wilson, York. The seat of government is Omaha (pop. in 1860, 1,950), opposite Council Bluffs in Iowa, a little above the latitude of New York city. As the outlet of the Platte valley and the crossing point of the river for the North Platte route to Denver, California, and Oregon, and the business centre for northern Nebraska, Omaha has great commercial promise. The capitol, built on a commanding eminence and romantic site, is a good two-story brick structure, still unfinished. Nebraska City (pop. 2,000) is the chief town below the Platte. It is on the beautiful site of old Fort Kearney, commands a good share of the travel to Denver and the mines, and for 3 years has been the river starting point for Russell, Majors, and Waddell's transportation trains to Utah, &c. Among the other principal towns, with populations of less than 1,000, are Plattsmouth, Brownville, Rulo, Peru, Nemaha City, Falls City, Salem, Archer, Kenosha, Rock Bluff, and Wyoming, below the Platte; and Bellevue, the site of the old Omaha mission, Florence, the starting point on the Missouri for all the Mormon trains to Utah, and Fort Calhoun, De Soto, Cuming City, Tekama, Decatur, Omadi, Dakota, St. John's, Punca, St. James, and St. Helena, above the Platte, on and near the Missouri; Fontanelle on the Elkhorn, and Fremont and Columbus, in the Platte valley.—The general surface of Nebraska approximates to a vast plain, rising gradually from the Missouri toward the mountains. The bottoms are level; the prairies, of which the surface mostly consists, are either gently undulating or broken into low hills and ridges. There are few hills of magnitude, and no mountains except at the west and north-west, where the land rises into the Black hills and Rocky mountain ranges. No lakes have been discovered, but the rivers and streams are very numerous. The head waters and upper branches of the Missouri are all in Nebraska. The main stream crosses the 103d meridian, with an eastward flow, and thence becomes the boundary of the territory down to Kansas. This great river is navigable nearly to its source, at the foot of the Rocky mountains. Boats have ascended it about 300 m. above Fort Benton. It is used by the government for transporting supplies, troops, and munitions to the upper forts, and to the Pacific coast, the land carriage being only about 500 m. through a pass in the mountains to the head of navigation on the Columbia. The only dangers in its navigation arise from snags, and these are fast disappearing from the increase of travel and the removal of trees along the shores. Among its upper Nebraska affluents are the Jefferson, Madison, and Gallatin forks, at its source; Smith river, Marias, Muscle Shoal, Milk river, Big Muddy, Yellowstone, Little Missouri, Shayan, White Earth, and Niobrarah. The Niobrarah is remarkable for its rapidity, its changeable channels, and wide sandy bed, which is cut up into bars and naked isles of sand, always movable and shifting; it marks the N. limit of present settlement. Rising at the foot of the Black hills, near Fort Laramie, it runs nearly due E. about 400 m., and empties near lat. 43°. Its valley, leading straight toward Fort Laramie and the South pass, is said to afford a good and very direct military route to those points. The Platte has two forks, which rise respectively in the North and South parks of the Rocky mountains, and unite near lat. 41°, long. 101°; it divides the settled portions of the territory into two nearly equal sections; its mouth is near lat. 41°. Fort Laramie is on the North fork, near the Black hills; Denver, the embryo metropolis of the gold region, on the South fork; and Fort Kearney on the main stream below the junction. The Sweetwater, Medicine Bow, and Laramie, all near the mountains, are tributaries of the North fork; and Cherry creek, Cache La Poudre, and several other small streams, flow into the South fork, toward its source. The Platte is wide, rapid, and shallow, full of sand bars, with divided channels, and not navigable. Its special feature is the unrivalled valley through which it courses from the mountains to the Missouri. It is by the main stream and South fork about 800 m. long, and by the North fork still longer. The lower portion of the valley has a soil of exuberant fertility, and generally a width of 8 to 15 m. It is being rapidly settled. The Wood, Loupe, and Elkhorn rivers join the Platte on the N. side, below Fort Kearney. All have extensive and fertile valleys. The Big Blue and Little Blue, flowing S. E., cross the line into Kansas, the former about 65 and the latter about 90 m. W. of the Missouri. Both are well timbered, with excellent farming lands adjacent.—The streams in the interior flow mostly through valleys rank with vegetation, of loose, rich soil, in which they cut their channels deep and winding, with nothing to mark their course save an occasional fringe of trees. The Missouri bottom, from 10 to 20 m. wide between the 40th and 43d parallels, is covered in places with a heavy growth of cottonwood, with sometimes a mixture of hard wood, oak, black walnut, elm, butternut, &c.; but one half or more is without timber, covered with coarse high grass. Next to this is the strip of level prairie, called the second bottom, the site of most of the river towns. It varies from ½ m. to 10 m. in width, but at some points the bluffs come down to the river, or to the lower bottom. The bluffs consist of a range of low hills, sometimes of easy declivity, but often abrupt, irregular, and very broken. At their foot and in their hollows hard wood timber is found in many places, but in others their only growth is grass. They become less and less broken for a few miles back, where they gradually blend with the treeless prairies. These, starting from the summit of the bluffs and keeping about the same level, stretch away in low swells to the westward. Far back from the Missouri they meet the sandy belt which, from Texas to British America, separates the mountainous region from the arable lands drained by the great rivers of the continent. The prairies annually burn over, fires being introduced by accident, or purposely set by the Indians, according to their practice for an unknown period. Their surface is generally free from bowlders or stones, the plough penetrating the soil without impediment.—The southern portion of the territory abounds in limestone, and the counties along the Kansas line, particularly near the Blues, present some stony surface. In many places sandstone underlies the soil, cropping out along the bluffs and ravines. Rock is seldom met with in digging wells, which range from 15 to 60 feet deep. In Cedar co., on the Missouri, and in some other localities, there is a large deposit, a few feet beneath the surface, of a calcareous substance, soft and pliable, which hardens on exposure, and makes excellent lime. Alum has been discovered in Dixon co., and coal is found at various points, usually in veins too thin to furnish cheap fuel; but some of them range from 20 inches to 2 feet. As no geological or scientific explorations have been made in the territory, it is impossible to state its mineral resources; but much is hoped from its location, and contiguity to valuable coal and mineral regions. On Salt creek in Lancaster co. several rich salt springs have been discovered. The salt impregnates the waters of the creek, and in many spots covers the ground with a crust about the thickness of window glass, spreading in one place over an extent of 3 m. by ½ m. Eastern Nebraska may not be prolific in minerals, but the mountains at the west are a vast storehouse of the precious and useful metals, gold, silver, copper, cinnabar, and others, which abound in the Rocky mountain chain from Central America to the Russian possessions, and have been dug already at the sources of the Platte and of the Yellowstone, in Nebraska.—The agricultural and pastoral region between the Missouri and the sandy tract west of it ranges in width from 100 to 150 m., and along the Platte extends about 300 m. from the Missouri. Between lat. 40° and 43° it embraces a tract of some 30,000 sq. m., without waste lands, equal in soil, productiveness, and ease of tillage to any tract of the same extent in the Union. It consists of bottom lands, valleys, and prairies. The prairie soil is a deep, dark, vegetable mould, slightly impregnated with lime. It contains but little clay, does not cake after rains, and resists with singular endurance unusual wet or drought. It is very easily stirred and tilled. The natural roads over it wear down with travel to a smooth hard surface, seldom becoming muddy or dusty, and needing no repairs. The native grass grows in bunches close together, but not forming a very compact sward; it is fine and nutritious, the favorite food of the buffalo and deer, and all the domestic animals thrive on it. The valley soil is of the same general quality, but deeper and richer from the continual washings of the uplands. The alluvial soil of the Missouri bottom has a basis of sand, heightened and fertilized by the detritus left by the river. The valleys at the base of the mountains near the mines produce good vegetables; but the central, N., and N. W. parts of the territory, still unsettled, have but little arable land. The Mauvaises Terres, or bad lands, are peculiar and strikingly desolate. The valley so named lies E. of the Black hills, is about 30 by 90 m. in extent, sunk abruptly away from its prairie surroundings, with almost vertical sides, and is about 300 feet deep in its lowest part. It is filled with innumerable pinnacles, columns, and irregular masses of earth and rock, separated by labyrinthine passages, nearly destitute of vegetation, bare and sterile, but rich in fossils, geological treasures, and organic relics of extinct animals. Throughout the fertile region above described, wheat, corn, oats, and other cereals, sorghum, root crops, and all culinary vegetables, give a large yield. Sweet potatoes are raised below lat. 42°, and may succeed above. The native fruits are plums, grapes, raspberries, strawberries, gooseberries, and others. The first two are found in great quantities; all are of fine quality. The winters are too severe for peaches. The soil and climate are suitable for tobacco, but this has not been much tried. The prairies furnish a boundless pasture ground, and the grass of the valleys and low spots makes excellent hay.—The altitude of the country, considerably greater than that of the Mississippi valley, secures to it a dry, pure, salubrious atmosphere, free from fogs and humidity. The prevalent diseases are mostly malarious, and become less frequent as cultivation is extended. The climate is remarkable for the number of bright, clear, sunny days throughout the year. Rain is not abundant, the summer and autumn being comparatively dry. The extreme of heat is 100°. This is tempered by the prairie breezes, and the nights are always cool. The winters are usually mild and open, with little snow. The extreme cold is from 10° to 15° below zero in moderate winters, and from 20° to 30° below in the severe ones. High winds prevail in the spring, and at times throughout the year, sweeping unobstructed over the open plains.—The population is from the various states, nearly all from those above the line of 36° 30′, with a mixture of the foreign element. The Germans and Irish congregate in the larger towns, and make up several farming settlements. Slavery has scarcely had a practical existence in the territory. A few household servants, 12 to 20 in all, were brought into the southern counties, but nearly all of them are gone. A bill to prohibit slavery was passed by the legislature in 1861, over the governor's veto. The Indian tribes were almost the sole inhabitants when the territory was organized. The Omahas, about 900 in number, have a reserve just above lat. 42° on the Missouri; their annuity is $30,000. The Pawnees' reserve is on the Loupe; they number about 4,000, and receive an annuity of $40,000. The Otoes' is next to the Kansas line, on the Big Blue; their number is from 700 to 800, and their annuity $13,000. The half-breeds of the Sioux, Omahas, Iowas, and Otoes, by treaty of July 15, 1830, obtained a reserve, which they still occupy in part, portions of it being now held by whites. Above the Niobrarah the Poncas and Yankton Sioux have lately ceded their lands, retaining reserves. The Poncas have an annuity of $12,000, and the Sioux of $65,000. The N., N. W., and W. parts of the territory contain many wild tribes. The Omahas have a mission and school among them. Military posts are maintained among and near them at Forts Kearney and Laramie on the Platte, and Forts Union, Randall, and Benton on the Missouri.—Agricultural and pastoral pursuits will chiefly engage the people of Nebraska; the scarcity of fuel and of good water power will limit manufacturing. The traffic upon the Missouri is already large, and will be immense. The gold discoveries in western Kansas and Nebraska gave a great and sudden impulse to the commerce of the plains across those territories. Nebraska has its full share. Three routes, starting from Omaha, Plattsmouth, and Nebraska City, unite at Fort Kearney, and thence follow the Platte valley to Denver and the mountains. On all, the roads are excellent, wood and water convenient, and the distance less than by more southern routes. It is expected that roads still more direct will soon be opened across the territory. In 1860, 9,100 teams crossed the ferry at Omaha, of which about 6,000 were bound westward to the mines, California, &c.; 2,959 crossed the Loupe, N. of the Platte, by ferry, and several thousands crossed the Platte by Shinn's ferry E. of the Loupe. Nebraska has no railroads yet, but the 4 land grant railroads of Iowa now in progress (the Burlington and Missouri, Mississippi and Missouri, Iowa central, and Dubuque and Pacific) will terminate on the Missouri, probably opposite Nebraska City or Plattsmouth, Omaha, Decatur, and Dakota. Efforts will be made to continue all these and construct others across Nebraska. The St. Joseph and Council Bluffs railroad, now partly finished, will reach the point opposite Omaha within 18 months. The western telegraph is constructed along the Missouri, up to Omaha, and thence W. along the Platte to Fort Kearney, and will be extended to the Pacific. Steam ferries are maintained across the Missouri at Omaha, Dakota, Bellevue, Plattsmouth, Nebraska City, and Brownville.—The school system is modelled on that of Ohio. The number of schools in operation is 121; of districts, 139; of children entitled to attend, 7,041; actual attendance, 2,930. There are land offices at Brownville, Nebraska City, Omaha, and Dakota, at which millions of acres are now subject to entry. The civil code of Ohio and the criminal code of Illinois were adopted with few modifications in 1858, and are in force. Ten newspapers are now published, several having failed for want of patronage. Most of the religious denominations of the United States, including Mormons, are represented. The organic act is very similar to that of other territories, providing for a legislature of two houses, elected by the people, and a governor, secretary, district attorney, judges, and marshal, appointed by the president, with the usual powers pertaining to the respective offices.—Nebraska is a part of the Louisiana purchase, from which Louisiana, Missouri, Arkansas, Iowa, and Minnesota were successively carved out, leaving an unpeopled Indian country W. of Missouri and Iowa, which was finally organized, May 30, 1854, by the Kansas-Nebraska act, Kansas having since become a state. Emigration to both territories began at once, but Nebraska wholly escaped the political troubles which convulsed Kansas and excited the country. The emigration was rapid and constant until the revulsion of 1857, which checked it, and from which it has not wholly recovered. During the prosperous interval every interest seemed to thrive. Towns were built in a summer; lots and claims rose to fabulous prices; labor was in extraordinary demand; and the prairies were mapped into town plots. Since then the course of affairs has changed, farms have multiplied, and the mechanic arts flourished; trade has become steady and legitimate; and real wealth has greatly increased.

NEBUCHADNEZZAR (on the Babylonian monuments, *Nabukuduri-uzur*), a Chaldean king of Babylon who flourished at the beginning of the 6th century B. C. He was the son of Nabopolassar, who in 605 or 604 B. C. sent him at the head of a large army against the Egyptians, whose king Necho had invaded and conquered the south-western provinces of the Babylonian empire, and had placed Jehoiakim on the throne of Jerusalem. Nebuchadnezzar encountered the Egyptians at Carchemish (Circesium) on the Euphrates and utterly routed them, and pursued Necho as far as the "river of Egypt," on the border between that country and Palestine. Jehoiakim submitted to the victor, and was allowed to retain his kingdom as a tributary of Babylon. In the midst of his career of conquest Nebuchadnezzar was recalled to Babylon by the death of his father (604 B. C.), whom he succeeded as king. He brought to Babylon a multitude of captives, Jews, Phœnicians, Syrians, and Egyptians, whom he employed as slaves in the construction of gigantic works, the remains of which are yet visible throughout Mesopotamia. He built a stupendous canal, rivalling the Euphrates in breadth and depth, and running from Hit on that river to the bay of Graine in the Persian gulf, a distance of nearly 500 miles, and serving not only for purposes of commerce, but for irrigation, and as a barrier against the Bedouin Arabs. An immense reservoir for purposes of irrigation, 140 miles in circumference, was formed near Sippara; extensive quays and breakwaters were constructed on the shores of the Persian gulf; and the waters of the Tigris and Euphrates were kept within bounds by embankments of solid masonry at various points. Almost all the cities of upper Babylonia, including Sippara, Borsippa, Cutha, Teredon, Chilmad, and Babylon itself, were rebuilt upon a magnificent scale, and embellished with temples, palaces, aqueducts, and other public works. The greatest, however, of his architectural achievements was the fortification of the capital, which was enclosed by a wall containing, according to the estimate of the Rev. George Rawlinson, above 200,000,000 yards of solid masonry, or nearly twice the cubic contents of the great wall of China. He built also a palace, constructed, it is said, in 15 days, whose remains after the lapse of 2,400 years still form one of the most prominent features of the ruins of Babylon. The wonderful hanging gardens he constructed to gratify his wife Amytis, a daughter of the king of Media, who longed for the mountains of her native land. The famous temple of Belus was also greatly embellished if not entirely rebuilt by him. While he carried on these great works Nebuchadnezzar at the same time was engaged in war with various nations. Early in his reign the Jews and the Phœnicians rebelled. Nebuchadnezzar marched against them in person with a great army, took Jerusalem, and carried captive to Babylon a multitude of its principal people, including King Jehoiachin, who had succeeded his father Jehoiakim. Several years later Zedekiah, who had been made king by the Chaldean monarch, instigated by hope of assistance from Egypt, rebelled; and Nebuchadnezzar again besieged Jerusalem, and after defeating the Egyptian king Uaphris, the Apries of the Greeks and Pharaoh-Hophra of Scripture, who came to its relief, compelled it to surrender. Zedekiah was blinded and carried to Babylon, Jerusalem was burned and its walls razed, and the greater part of the people were transported to Babylonia. During these wars with the Jews and Egyptians the forces of Nebuchadnezzar were investing the Phœnician city of Tyre, which after a siege of 13 years surrendered in 585 B. C. Four years afterward he led an army through Syria and Palestine into Egypt, which he ravaged and plundered, but abandoned without effecting its complete subjugation. From this period, 582 B. C., all that is known of the history of Nebuchadnezzar is from the book of Daniel. That prophet had been while yet a youth carried captive to Babylon with 3 companions, to whom the Babylonians gave the names of Shadrach, Meshach, and Abednego. By his skilful interpretation of a dream Daniel had raised himself and his friends to great favor at court. Subsequently, however, the king set up an image of gold in the plain of Dura, and commanded all the people to fall down and worship it under penalty of being thrown into a burning fiery furnace. Daniel and his 3 Hebrew companions, refusing to worship the idol, were cast into the furnace, and miraculously delivered unhurt, and were promoted by the king to high offices in acknowledgment of the divine power which had protected them. Subsequently it is related of Nebuchadnezzar: "At the end of twelve months he walked in the palace of the kingdom of Babylon. The king spake and said, Is not this great Babylon, that I have builded for the house of the kingdom by the might of my power, and for the honor of my majesty? While the word was in the king's mouth, there fell a voice from heaven, saying, O king Nebuchadnezzar, to thee it is spoken, The kingdom is departed from thee; and they shall drive thee from man, and thy dwelling shall be with the beasts of the field; they shall make thee to eat grass as oxen, and seven times shall pass over thee, until thou know that the Most High ruleth in the kingdom of men, and giveth it to whomsoever he will. The same hour was the thing fulfilled upon Nebuchadnezzar; and he was driven from men, and did eat grass as oxen, and his body was wet with the dew of heaven, till his hairs were grown like eagles' feathers and his nails like birds' claws. And at the end of the days I Nebuchadnezzar lifted up mine eyes unto heaven, and mine understanding returned unto me, and I blessed the Most High. . . . . . . At the same time my reason returned unto me; and for the glory of my kingdom, mine honor and brightness returned unto me; and my counsellors and my lords sought unto me; and I was established in my kingdom, and excellent majesty was added unto me." The malady with which the pride of Nebuchadnezzar was thus punished is supposed to have been a form of the madness called lycanthropy, in which the patient imagines himself to be an animal and imitates the actions of a beast. A passage in an important cuneiform inscription, known as "the standard inscription," in which the great Babylonian monarch has recorded his own history, is considered by Mr. George Rawlinson to relate to this madness. (See Rawlinson's Herodotus, vol. i., essay viii., and Rawlinson's "Historical Evidences of the Truth of the Scripture Records," section v.) After a reign of 43 years Nebuchadnezzar died, 561 B. C., and was succeeded by his son Illoarudamus or Evil-Merodach.

NEBULA (Lat., mist, vapor), an aggregation of stars or stellar matter having the appearance, through an ordinary telescope, of a small, cloud-like patch of light. An enlargement of telescopic power usually converts this appearance into a cluster of innumerable stars, beside bringing to light other nebulæ before invisible. These in turn yield to augmented magnifying power; and thus every increase in the capacity of the telescope adds to the number of clusters resolved from nebulæ, and of nebulæ invisible to lower powers. Nebulæ proper, or those which have not been definitely resolved, are found in nearly every quarter of the firmament, though abounding especially near those regions which have fewest stars. Scarcely any are found near the milky way, and the great mass of them lie in the two opposite spaces furthest removed from this circle. Their forms are very various, and often undergo strange and unexpected changes as the power of the telescope with which they are viewed is increased, so as not to be recognizable in some cases as the same objects. The spiral nebulæ are an example of this transformation. This class was recognized by Lord Rosse through the use of his 6-foot reflector. Many of them had been long known as nebulæ, but their characteristic spiral form had never been suspected. They have the appearance of a maelstrom of stellar matter; and from the support they seem to lend to the celebrated nebular hypothesis of Sir William Herschel, and Laplace's theory of the genesis of the solar system, they are perhaps the most interesting objects in the heavens. There is another class of nebulæ which bear a close resemblance to planetary disks, and are hence called planetary nebulæ. They are very rare. Some of them present remarkable peculiarities of color. Sir John Herschel has described a beautiful example of this class, situated in the southern cross. There are several which have perfectly the appearance of a ring, and are called annular nebulæ. A conspicuous and beautiful example is situated in Lyra. Some appear to be physically connected in pairs like double stars. Most of the small nebulæ have the general appearance of a bright central nucleus enveloped in a nebulous veil. This nucleus is sometimes concentrated as a star and sometimes diffused. The enveloping veil is sometimes circular, and sometimes elliptical, with every degree of eccentricity between a circle and a straight line. There are some which, with a general disposition to symmetry of form, have great branching arms or filaments with more or less precision of outline. An example of this is Lord Rosse's Crab nebula. Beside the above, which are comparatively small telescopic objects and have regular forms, there are others much larger and more diffused, and devoid of symmetry of shape. An example of this is the nebula in Andromeda, which is visible with the naked eye, and is the only one which was discovered before the invention of the telescope. Simon Marius (1612) describes its appearance as that of a candle shining through horn. A more remarkable example is the great nebula in Orion, discovered by Huyghens in 1656. These two have been admirably delineated by the Professors Bond of Harvard observatory. (See "Memoirs of the American Academy of Arts and Sciences," new series, vol. iii.) The great nebula in Argo, which Sir John Herschel has charted with exquisite care and elaborateness in his "Cape Observations," is another example of this class. In the southern firmament there are two extensive nebulous tracts known as the Magellanic clouds, the greater called Nubecula Major, and occupying an area of 42 square degrees, the smaller called Nubecula Minor, and covering about 10 square degrees. In these tracts are found multitudes of small nebulæ and clusters. The number of these wonderful objects which have been recognized in all the heavens is upward of 4,000. Of these fewer than 150 were known prior to the time of Sir William Herschel. In 1786 that distinguished observer communicated to the royal society a catalogue of 1,000 new nebulæ and clusters; in 1789 a second catalogue of the same number of new objects; and in 1802 a third catalogue which included 500 more. In 1833 Sir John Herschel communicated to the royal society a catalogue of 2,306 nebulæ and clusters in the northern hemisphere observed by him, 500 of which were new. In 1847 appeared his "Cape Observations," which contained catalogues of 1,708 nebulæ and clusters in the southern heavens.—As to the nature of the nebulæ, astronomers have generally accepted the hypothesis that they are stellar galaxies similar to our own firmament of stars, island universes scattered up and down through immensity. Sir William Herschel propounded the famous nebular hypothesis to explain them. (See NEBULAR HYPOTHESIS.) The distance assigned to them is incredible. Sir William calculated that one of the faint nebulæ seen in his 40-foot telescope was so distant that its light, though moving through space at the rate of 192,000 m. in a second, must have occupied above 2,000,000 years in its passage to the earth.

NEBULAR HYPOTHESIS, the celebrated speculation of Sir William Herschel, adopted and developed by Laplace, assigning the genesis of the heavenly bodies to the gradual aggregation and condensation of a highly attenuated self-luminous substance diffused through space. (See "Philosophical Transactions," 1811.) To this hypothesis Herschel was led by his conclusion that there were nebulosities not composed of stars. The Rosse telescope having decomposed nebulæ hitherto considered to be irresolvable, and exhibited symptoms of resolvability in others still more intractable, it has been assumed that all nebulæ are stellar, their nebulosity being solely a question of distance; and thus, the basis of Herschel's reasoning failing, the fabric of his hypothesis was thought to be demolished. An able writer (Mr. Herbert Spencer) has come to its support in the "Westminster Review," No. cxxxvii. (July, 1858). The argument in its favor is substantially as follows. The assumption that all nebulæ are remote galaxies does not invalidate the indications furnished by the structure of the solar system, which still points to a nebular origin just as significantly as before. But the assumption is inadmissible. The mode of distribution of the nebulæ furnishes evidence of a physical connection with our stellar system; and this evidence is confirmed by the fact of their resolvability with telescopic power which fails to make individually visible the most distant stars of our own milky way. If they are remote galaxies, it may be assumed that, speaking generally, the largest are the nearest, and therefore the most resolvable. But the fact is, the smallest are the most resolvable. Another difficulty is presented by the Magellanic clouds. (See NEBULA.) Sir John Herschel, considering the structure of the larger of these, concludes that "it must be taken as a demonstrated fact that stars of the 7th or 8th magnitude, and irresolvable nebulæ, may coexist within limits of distance not differing in proportion more than as 9 to 10." ("Outlines of Astronomy," London, 1851, p. 615.) This clearly supplies a *reductio ad absurdum* of the popular doctrine. Assuming, for the sake of the argument, a rare, homogeneous, nebulous matter, widely diffused through space, the following successive changes will, on physical principles, take place in it: 1, mutual gravitation of its atoms; 2, atomic repulsion; 3, evolution of heat, by overcoming this repulsion; 4, molecular combination, at a certain stage of condensation, followed by, 5, sudden and great disengagement of heat; 6, lowering of temperature by radiation and consequent precipitation of binary atoms, aggregating into irregular flocculi and floating in the rarer medium, just as water when precipitated from air collects into clouds; 7, each flocculus will move toward the common centre of gravity of all; but being an irregular mass in a resisting medium, this motion will be out of the rectilinear, that is to say, not directly toward the common centre of gravity, but toward one or other side of it; and thus, 8, a spiral movement will ensue, which will be communicated to the rarer medium through which the flocculus is moving; and, 9, a preponderating momentum and rotation of the whole mass in some one direction, converging in spirals toward the common centre of gravity. Certain subordinate actions are to be noticed also. Mutual attraction will tend to produce groups of flocculi concentrating around local centres of gravity, and acquiring a subordinate vertical movement. These conclusions are shown to be in entire harmony with the observed phenomena. In this genetic process, when the precipitated matter is aggregating into flocculi, there will be found here and there detached portions, like shreds of cloud in a summer sky, which will not coalesce with the larger internal masses, but will slowly follow without overtaking them. These fragments will assume characteristics of motion strikingly correspondent to those of the comets, whose physical constitution and distribution are seen to be completely accordant with the hypothesis.—The physical characters resulting from the hypothesis are found to tally with the facts. In a rotating spheroid of aëriform matter in the latter stages of concentration, but before it has begun to take a liquid or solid form, the following actions will go on: 1, more and more rapid aggregation of its atoms into a smaller and denser mass, as the common centre of gravity is approached; 2, development of oblateness; 3, evolution of heat, greatest at the central parts; and, as a consequence, 4, circulation—currents setting from the centre toward the poles and thence to the equator, and counter currents from the equator to the centre. In the course of this round there will be, 5, an oscillation of temperature: first, from the centre outward—expansion by diminished pressure and other causes, and consequent lowering of temperature; secondly, from the equator inward—rise in temperature for converse reasons. 6. As a corollary to 4 and 5, external condensation will occur according to the laws of precipitation from gases, resulting in a belt of vapor about the equator, gradually widening and condensing into a fluid; 7, this fluid film will gradually extend itself till it eventually closes over at the poles, thus forming a thin hollow spheroid filled with gaseous matter; 8, at length the liquid shell will become very thick, the outer surface will experience a fall of temperature and begin to harden into a solid crust.—This hypothesis explains the relative specific gravities of the planetary bodies, the formation of the asteroids, the earth's supposed interior structure, indications of past or present high temperature throughout the solar system, and the sun's incandescence.

NECKAR (anc. *Nicer*), an important affluent of the Rhine, which rises in Würtemberg on the E. of the Black forest, near the village of Schwenningen, on the frontiers of Baden, at an elevation of more than 2,000 feet above the sea. It first flows in a N. E. direction through part of Hohenzollern, then N. through Würtemberg, and finally W. through Baden, joining the Rhine at Mannheim. Its chief tributaries are the Enz, Kocher, and Jaxt. The principal places on its banks are the university towns of Tübingen, Heidelberg, and Heilbronn. The entire length of the Neckar is about 170 m., and it is navigable nearly to Cannstadt for small craft and to Heilbronn for steamers. The Neckar is remarkable for its lovely scenery, and excellent wine is produced along its shores.

NECKER, Jacques, a French financier and statesman, born in Geneva, Switzerland, Sept. 30, 1732, died at Coppet, in the same country, April 9, 1804. After receiving a liberal education, he repaired to Paris at the age of 15, was employed as a clerk in a banking house, became a partner in the banking house of Thelusson, and afterward engaged in the same business alone. Having accumulated a large fortune, he gave up business in 1764, and married Susanne Curchod, whose only portion was her beauty and her moral qualities. About the same time he was appointed resident minister of Geneva at the court of France. From 1764 to 1770 he acted as syndic of the French East India company, and, though unsuccessful in his efforts to retrieve their falling fortunes, he proved himself a skilful administrator. His reputation was greatly increased by several publications, such as the *Éloge* on Colbert, to which a prize was awarded by the French academy, and an *Essai sur la législation et le commerce des grains*, which appeared in 1775; and in 1776, though a foreigner and a Protestant, he was appointed assistant to the comptroller-general Taboureau, with the title of director of the treasury, and finally in 1777 director-general or minister of finance. These appointments he accepted on condition that he should receive no emoluments, and set himself to work in earnest to introduce order and economy into that branch of the administration. He restored confidence among capitalists by securing the payment of interest on loans, while he resorted sparingly to that mode of raising money; he restrained the prodigality of the court, greatly curtailed the expenses of the administration by diminishing the number and remuneration of treasurers, receivers, and farmers of the revenue, reclaimed many public estates which had been unlawfully alienated, regulated the assessment of taxes, abridged the right of mortmain, established a uniform excise on salt all over the kingdom, and endeavored to suppress statute labor and tolls. He morever introduced improvements in the government of several provinces, and assisted in establishing the *mont de piété* of Paris and a bank of discount, out of which subsequently grew the bank of France. By his management, a deficit of over 24,000,000 livres was made up, and in less than 5 years the annual receipts were 10,000,000 in excess of the annual expenditures. But these results were not brought about without arousing enmity from many courtiers whose pensions and privileges were materially abridged; and this enmity broke out when, in 1781, Necker presented to the king and published his celebrated *Compte rendu au roi sur les finances de l'état*, giving a full statement of the financial condition of France, and showing the various operations of the treasury, the reforms he had been able to accomplish, and the general principles on which his administration had been conducted. This unusual proceeding of placing before the public the hitherto secret workings of government was disagreeable to the prime minister Maurepas, and caused such an uproar among the courtiers that Necker thought it necessary to vindicate his views and measures before the king himself, and for that purpose insisted upon being admitted to a seat in the royal council, a privilege from which he had been excluded on account of his religious persuasion. His claim being disregarded, he sent in his resignation, which was gladly accepted by the court. This step only added to his popularity; and when a little later Calonne questioned the wisdom of his financial management and assailed his policy, Necker came unhurt out of the controversy, although his opponent was helped by the powerful pen of Mirabeau. His work entitled *Administration des finances* (1784) sold to the number of 80,000 copies in a few days, affording evidence of the strong hold he had upon public opinion. When the shortcomings or follies of his successors, Joly de Fleury, Calonne, and Brienne, had exhausted all available means and brought the exchequer to a crisis, Necker was recalled by Louis XVI. His return to power, Aug. 25, 1788, was hailed with general applause; confidence at once revived among all classes, and stocks rose 30 per cent. in a single day. The highest hopes were entertained of his ultimate success; but it was not a mere financial reform that was needed; a political revulsion was at hand. The condition of France now required the genius and the iron will of a great statesman. Necker was only a shrewd financier, and proved unequal to the momentous task. Relying upon his popularity and confiding in the power of reason, he at first flattered himself that he could control the revolutionary movement; but from the beginning he acted timidly. The assembling of the states-general had been promised by his predecessor, and he had to fulfil that promise. Notwithstanding the opinion of a meeting of the notables who insisted upon preserving the ancient mode of holding the states, he procured an order in council allowing the third estate a number of delegates equal to that of the nobility and clergy combined, but did not dare to settle the more important question, whether the vote should be taken by individuals instead of by classes. The difficulty was afterward solved without him. On the opening of the states-general, he made a long report upon the general condition of France, full of good wishes for the public welfare, but almost devoid of practical suggestions. After the royal session of June 23, he advised Louis XVI. to order the deputies of the nobles and the clergy to join those of the third estate. He was looked upon by the nation as the stanchest supporter of their rights, when on July 12, 1789, it was reported that on the preceding day he had been dismissed by the king and had secretly left France. Paris rose at once in the wildest excitement; his bust, with that of the then very popular duke of Orleans, was carried in a mourning procession through the streets; the insurrection was organized, and two days later the Bastile was taken. The king, yielding to popular clamor, sent immediately for his exiled minister, who returned from Switzerland amid universal enthusiasm, and after an absence of 18 days was reinstated in office. This was the climax of his popularity, which he was gradually to lose in the new trials that were in store for him. All the sources of public revenue were exhausted, and he had to provide for daily necessities. The time was past when his name alone could secure the success of a loan; one for 30,000,000 livres and another for 80,000,000 were proposed by him and voted by the constituent assembly on Aug. 9 and 27; and both failed. In this extremity, he moved (Sept. 24) that a tax amounting to the 4th part of all incomes should be levied; and through the influence of Mirabeau, who wanted the responsibility of such a measure to fall entirely upon the minister, the assembly granted it "without debate and by a vote of confidence." This was the last financial measure he proposed. He vainly tried to oppose some of the revolutionary measures originating in the constituent assembly, such as the seizure of church property and the issuing of *assignats*. In this futile attempt he grew unpopular, not only with the revolutionists, but with the majority of the deputies; while on the other hand he had lost the confidence of the king and of his colleagues, in whose eyes he was too "liberal." A new issue of *assignats* to the amount of 800,000,000 having, notwithstanding his opposition, been ordered by the assembly (Sept. 4, 1790), he resigned office and started immediately for Switzerland. On the very roads where the year previous he had been welcomed as the savior of France, he was insulted, threatened, and even arrested; an order from the assembly was necessary to procure his release. He retired to his estate of Coppet, near Geneva, where he engaged at once in writing a vindication of his conduct, *De l'administration de M. Necker, par lui-même* (1791). The following year he entered the lists in behalf of the French king, now arraigned before the convention; his *Réflexions offertes à la nation Française en faveur de Louis XVI.* had no other result than to cause him to be placed upon the list of *émigrés*. In 1796 he published an essay *De la révolution Française*, in which he severely censured the directorial government. After the accession of Bonaparte to power, Necker dreamed of the possibility of becoming his minister of finance; but in an interview he was coldly if not disdainfully treated. In consequence he published (1802) *Dernières vues de politique et de finances*, directed against the consular government. Among his miscellaneous writings are: *Le bonheur des sots* and *Fragments sur quelques usages de la société Française en* 1786, both humorous; *Du pouvoir exécutif dans les grands états*, a political essay (1791); and *Cours de morale religieuse* (1800). His *Œuvres complètes* (17 vols. 8vo.) appeared at Paris in 1822.—Susanne Curchod de Nasse, wife of the preceding, born in Geneva in 1739, died at Coppet in 1794. She belonged to a French Protestant family, who, on the repeal of the edict of Nantes, took refuge in Switzerland. Her father, a clergyman, gave special attention to her education; and she was early noticed for her solid and versatile knowledge no less than her beauty and virtue. The historian Gibbon sought her in marriage, but desisted in consequence of his father's opposition. Having married Necker in 1764, she accompanied him to Paris, where her house soon became the resort of most of the distinguished writers of the time. Buffon, St. Lambert, Marmontel, and Thomas were among her most frequent guests; and in this society she educated her daughter, who afterward became Mme. de Staël. She was much occupied with acts of benevolence, and was the founder of the hospital which bears her name. In 1794, being encouraged by her husband, she published her *Réflexions sur le divorce*, an elaborate plea for the indissolubility of marriage. A selection from her writings (*Mélanges*) was published by her husband after her death in 5 vols. 8vo.

NECROMANCY (Gr. νεκρος, dead, and μαντεια, divination), the art of foretelling events or revealing hidden knowledge by consulting the spirits of the dead. Its origin, which antedates historical times, may perhaps be referred to the practice, prevalent among many nations of antiquity, of offering sacrifices to the dead, who were believed to be thereby brought into so intimate relations with the living as to be capable under certain circumstances of communing or conversing with them. This belief was naturally encouraged by the priesthood, who, availing themselves of human credulity and superstition to confirm their own influence, claimed to be the interpreters of communications passing between the dead and the living, and thus originated a system of divination, the awful character of which, as well as the supernatural machinery with which it was conducted, could not fail to impress the beholder. Accordingly, from the earliest mythical and historical periods, the art has been practised with peculiar and imposing ceremonies; the necromancer surrounds himself with mysterious emblems; a multiplicity of rites precedes the evocation of the dead, and above all solitude and darkness, so potent in their influence over the imagination, are regarded as essential to its success. This was especially true of the Thessalians and other nations of northern Greece, by whom necromancy was more universally practised than among the Hellenic or Latin races. The Thessalian *ψυχαγωγοι*, or professed evokers of spirits, performed their rites with the sacrifices of human beings and other revolting practices, particularly explained in the 6th book of Lucan's *Pharsalia*, where the witch Erichtho reanimates the corpse of a soldier slain in battle, and compels him to answer her questions concerning futurity. Oracles of the dead (*νεκρομαντειον*), in which those who consulted called up the spirits of the departed and offered sacrifices to the gods of the lower world, were also not uncommon, one of the most ancient and celebrated being on the banks of the infernal river Acheron, in that part of Epirus inhabited by the Thesprotians. Another was in Heraclea on the Propontis; and in Magna Græcia, near Lake Avernus, was an oracular cave in which priests evoked the dead. Necyomancy (*νεκυομαντεια*), the favorite term among the ancients, seems also to have often signified a descent into Hades to consult the dead, rather than a calling of them out of that place; and the 11th book of the Odyssey, which recounts the intercourse of Ulysses with the prophet Tiresias and other shades, evidently makes the descent and the evocation one act. Ulysses, sailing all day from the island of Circe, arrives at sunset at the land of the Cimmerians, situated on the confines of the ocean, and enveloped in clouds and perpetual night. Having proceeded to a spot described by the enchantress, he digs a trench measuring a cubit square, into which he pours libations of honeyed milk, sweet wine, and water, sprinkling the whole with flour. Then, having vowed certain offerings to the manes, and called upon them to appear, he sacrifices a ram and a ewe with peculiar ceremonies, and lets the blood fill up the trench. Immediately the manes in countless numbers assemble around the trench, filling the air with shrieks, and seeking to lap up the sacrificial blood; but Ulysses repels them with his drawn sword until Tiresias has appeared and drunk his fill, the blood being the price of verity, and the reservation of a portion of it for the prophet necessary to the success of the enterprise. Tiresias and other shades, after tasting the blood, converse with the hero, who thus far seems to have performed a simple act of evocation. But as he is subsequently described as seeing Minos administering justice, Tityus tormented by vultures, Sisyphus upheaving the stone, and other mysteries peculiar to the interior of Hades, and as Achilles asks him how he has dared to descend to Hades where the shades of men dwell, he would seem to be represented as making an actual descent. Some commentators believe this part of the Homeric *νεκυομαντεια* to be the interpolation of a later era; but H. Coleridge, in his "Introduction to the Study of the Greek Classic Poets," is of the opinion that no actual descent was in the contemplation of the original poet, who has indicated by the indistinctness of his description the uncertainty of his own knowledge of the state and locality of the dead. Not unlike the adventure of Ulysses is the descent of Odin to the gates of hell to consult the prophetess Angarbodi, as described in the Sämundic Edda; although the rites with which the Scandinavian god evokes the dead are simpler than those employed by the Greek hero:

Facing to the northern clime,
Thrice he traced the Runic rhyme;
Thrice pronounced, in accents dread,
The thrilling verse that wakes the dead;
Till from out the hollow ground
Slowly breath'd a solemn sound.

The visits of Hercules, of Theseus and Pirithous, and perhaps of Orpheus, to the infernal regions, were instances of one species of necyomancy; while the evocation of the shade of Darius in the *Persæ* of Æschylus, and of that of Melissa by the tyrant Periander of Corinth, as related by Herodotus, is more in accordance with the modern acceptation of the term necromancy. In the 6th book of the Æneid the adventure of Æneas is manifestly a descent, and not in any part, as in Homer, an evocation. In reference to his exit by the ivory gate, which has been considered a feeble conclusion of the most striking portion of Virgil's epic, Jortin observes: "Incantations, evocations of the dead, conversations with the shades, communications with the infernal powers, necromantic divinations, all these belonged to the art magic; and magic was held in abomination by the Romans in Virgil's time and before it; and hence Christian emperors found it no difficulty to make very severe laws against such practices, which were already in bad repute. The poet therefore might choose to close the narrative with a hint that it was entirely a fiction." The Greek satiric writers have not failed to illustrate the subject of necromancy, and in the "Frogs" of Aristophanes, and particularly in Lucian's "Menippus," we have elaborate and amusing descriptions of the ceremonies attending the evocation of the dead and the entrance of the living into Hades. That necromancy, with other magical arts, was extensively practised among oriental nations at a very early period, is evident from the stringent provisions of the Mosaic law. In Deut. xviii. 10, 11, it is ordained that "there shall not be found" among the people "any one that useth divination, ... or a charmer, or a consulter with familiar spirits, or a wizard, or a necromancer;" and elsewhere in the Pentateuch and in the prophecies of Isaiah the practice is denounced as sinful. The example of surrounding nations, however, seems frequently to have led the Israelites astray; and Saul, after having, in obedience to the divine command, "put away those that had familiar spirits and the wizards out of the land," procured the woman of Endor to evoke the spirit of Samuel, saying to her: "Bring me him up whom I shall name unto thee." (1 Sam. xxviii. 3–8.) Isaiah denounces also those who sleep upon tombs for the purpose of having communications from the departed by means of dreams; and, as if to prevent any attempt at evocation of the departed, the Jews were taught to consider simple contact with a dead body unclean. The establishment of the Christian religion brought the necromancer, whose occupation in an earlier age had been of a religious character, or at least a lawful one, under the ban of the church; and the emperor Constantine, while he permitted the pagan priesthood upon certain occasions to consult their augurs, prohibited under severe penalties the evocation of the dead. Julian the Apostate, however, subsequently encouraged the practice, which was so common among the unconverted in the early history of the church, that, according to Mr. E. Rich, as appears from passages in the writings of the fathers, one object of the experiences to which the Christian neophyte was subject, was his introduction to a lawful communion with the spirits of the departed. The necromancer of the middle ages seems to have been merged in the sorcerer, who practised what was called the "black" or "forbidden art," and summoned not merely the spirits of the dead, but, by means of potent spells, demons and infernal spirits whose presence was full of danger and terror to the evoker. As late as the close of the 15th century public schools of necromancy are said to have been in existence in Seville, Toledo, and Salamanca, in caverns and other subterranean retreats, the entrances to which Isabella the Catholic caused to be securely walled up.—The latest form of necromancy will be found treated under the head of SPIRITUALISM. See also MAGIC.

NECTAR, according to the Greek and Roman mythologists and poets, the beverage of the gods, imparting health, vigor, youth, and beauty to all who drank it. It is described as a red wine, which like that of mortals was drunk mixed with water. It was served at the banquets of the immortals by Hebe or Ganymede. According to a few ancient writers it was the same as ambrosia, being not the drink but the food of the gods. In the Iliad, Thetis is represented as preserving the body of Patroclus from decay by anointing it with both ambrosia and nectar.

NECTARINE, a fruit considered by botanists as in no way distinct from the peach except in its having a smooth skin. It is the product of the *amygdalus Persica*, variety *lævis* of De Candolle, and like its parent species occurs in two sorts, viz.: the freestone nectarine, with the flesh parting from the nut, and the clingstone nectarine, with the flesh adhering to the nut. The best varieties are known under the names of early violet, Elruge, Boston, Hunt's tawny, Roman, &c., requiring the same treatment in cultivation as is appropriate to the peach. Royle, in his "Illustrations of Botany," &c. (London, 1839), mentions the nectarine as being seen in the gardens of northern India, where it is called the smooth peach; but from whence it was introduced is uncertain. In the northern part of the United States the nectarine is sometimes forced in peach houses with success; and some of the hardier sorts will thrive in the open air.

NECTARY, a term now in disuse, employed by the Linnæan botanists to designate that part of the flower which secretes a sugary fluid similar to or precisely the same as honey. The use of this fluid was supposed to be that of attracting insects, so that fertilization might be rendered certain by their rubbing their bodies against the pollen grains and thus transferring them to the stigmata. This idea is now abandoned, and the nectary is not considered an essential or distinct organ, the secretion in question differing in no particular functional aspect from other secretions in other parts of the plant. Malpighi in 1671, Tournefort in 1694, and Vaillant in 1718 noticed this honeyed secretion in particular parts of flowers; but the last especially did not regard the parts as deserving any distinct name. Linnæus, however, in 1750, in his *Philosophia Botanica*, claims the merit of having first detected and exposed these organs. With him the corolla of a flower consisted of the petal and the nectary; the latter was called the melliferous part peculiar to the flower. Frequently it was only a gland or glandular bodies in the bottom of the calyx, at the base of the petals or stamens, as in *berberis*, *caltha*, and the siliquose plants, *erica*, *fuchsia*, &c.; or scales in the base of the corolla, as in *sedum* and *crassula*; or a sort of pitcher (*urceolus*) in the same position, as in *eucomis* and *ruscus*; or a fleshy ring surrounding the germen, as in *nicandra*, *crocus*, and *salvia*; or the base of the petals becoming a sort of fleshy gland, as in *fritillaria*; or pits in the tube of the corolla or in the petals, as in *hydrophyllum*; or processes from the stamens, as in *viola* and *fumaria*; or pores on the ovary, as in *scilla* and *ruta*; or a swelling of the bottom of the corolla, as in *lonicera* and *antirrhinum*; or sub-tubular, honey-bearing claws, as in *myosorus* and *ranunculus*; or a terminal spur, as in *aquilegia* and *impatiens*; or the labellum of the *orchis* family was considered the nectary, and even the cup of the *narcissus*. The nectar itself was guarded by the *nectarilyma*, in the shape of hairs, scales, rings, connivent and concrete anthers; or lodged securely in the *nectarotheca*, pocket-like swellings; or designated and pointed out to insects by the *nectarostigma*, in the forms of spots, lines, or processes of more vivid tints.

NEEDLE, a slender steel instrument, pointed at one end and with an eye at the other.

used for carrying the thread in sewing. Among uncivilized people, at a very early period, rude attempts were made to form needles or bodkins of bone and ivory, by means of which their garments might be stitched together. The use of needles was known to the ancient Egyptians, a few having been found in their tombs. These were of bronze and of large size, being from 3 to 4 inches in length; but Wilkinson states that such as were employed in their fine work must have been of a very minute kind. Pliny mentions needles of bronze for sewing and knitting as being in use in his day. The Spanish or steel needle was introduced into England in the time of Queen Elizabeth; but the process by which it was made was kept secret, and the art was unknown until the year 1650, when it was again revived by Christopher Greening at Long Crenden in Buckinghamshire. Great improvements have since been introduced in needle making; and the "fine steel needles" of that period bear but a faint resemblance to the delicate and highly tempered needles of the present time. The manufacture of needles is now carried on to a great extent in many villages in England, but principally at Redditch, about 14 miles from Birmingham; and from this obscure place a large portion of Europe, the British colonies, and the United States are supplied. They are also made at Aix la Chapelle and at Borcette, a town not far distant, the latter place being the principal seat of the manufacture on the continent.—Though extremely simple in its form and appearance, the needle requires a multitude of operations for its construction, passing through the hands of nearly 100 workmen. The wires of various sizes being furnished in coils to the needle maker, he selects such as are of equal diameter and clips them into pieces, each of the length of two needles, with large shears, which are fastened to the wall of the cutting room. These, being cut from the coil, are of course more or less bent. To straighten them, many thousands are enclosed within a couple of rings, and, after being heated to redness, are laid, still retained in the rings, on an iron plate. The workman then takes what is called a smooth file, having two slots cut lengthwise in it, into which the edges of the rings are inserted. Holding this instrument by the ends, he rolls the rings backward and forward until the wires by their friction against each other become perfectly straight. The wires are next pointed by applying them to small, rapidly revolving grindstones. A workman is seated by each stone, holding in his left hand a number of wires, so arranged that the ends project slightly over the fingers and hand, and by a peculiar motion of the right hand he so rolls the wires over the stone as to produce a symmetrical point, occasionally dipping them in water to keep them cool. This operation soon ruins the health of the grinder, the fine dust from the steel penetrating the lungs, and producing a disease known as "grinders' asthma." A physician in Redditch has observed during a long practice that out of many thousand men employed in pointing, scarcely one reaches the age of 40. Many ingenious methods have been contrived to remedy this evil, but the grinders are unwilling to adopt them, as by lessening the risk they fear a decrease in their wages; and the only precaution they take is that of tying a large handkerchief over the mouth. The needle manufacturers are now introducing ventilating shafts which purify the air from the injurious dust. The wires being pointed at both ends, the centre of each is flattened, and a groove is formed on either side, with a small indentation at the spot where the eye of the needle is to be made, which operation is performed by means of a stamping machine. A bed of iron which contains the under half of the die or stamp is supported on a heavy stone, the upper half being attached to the bottom of a hammer, of about 12 lbs. weight, which is raised with the foot by means of a lever. The wires are dropped, one at a time, upon the iron bed, and the hammer is made to fall upon them with a sharp blow. The raised faces of the stamp produce indentations on the opposite sides of the wire; and though the operator adjusts each piece separately, yet he can stamp 2,000 wires or 4,000 needles in an hour. The work of eyeing the needles is performed by boys, who use small hand presses for the purpose. The needles are arranged in the form of a fan, and placed on an iron slab. The upper arm of the press is provided with a couple of steel points or cutters which are brought down to punch the eyes, the boy constantly moving the wires in his hand so as to bring a fresh one under the cutter. So expert do they become in this business, that it is said they can pierce one human hair and thread it with another. Another method is sometimes adopted for eyeing the needles. The wires, after being pointed at the ends, are cut in two, and laid parallel to each other in boxes. The head of each separate wire is then flattened with a small hammer on a block of steel, which hardens it so much that it is necessary to soften it by heating before the eye can be made. The piercer, who is generally a child, then places the ends on a block of steel, and with one blow of a hammer by means of a sharp punch pierces the eye. The needle is turned over and the operation repeated in order that the two sides may be alike. The groove is formed afterward by means of a small file. This method is little practised, being neither so economical nor so expeditious as that first described. In the former process, after the wire is perforated, the needles are strung on fine wires, and the bur formed by stamping out the eyes is filed off. The lengths are next separated between the eyes by bending the lines of needles backward and forward. The points then being held firmly in a hand vice, the heads are filed to their proper shape. This completes the soft work, as it is called. The next process is hardening. The needles are now in a black, soft, dingy state; and in order to harden them they are placed on iron plates and brought to a red heat, when they are plunged into cold water or oil, after which they are again heated to a less temperature and more gradually cooled. Meanwhile, they are kept in constant motion until, changing to a blue color, they are seen to be of the proper temper. Such of the needles as have become distorted are detected by rolling them upon a smooth steel surface with the finger. These are straightened by being tapped upon an anvil with a small hammer. The scouring or cleaning is accomplished by laying the needles in heaps upon pieces of canvas, scattering upon them a quantity of soft soap, emery, and oil, and rolling them into bundles which are secured by being closely wound with twine. Each bundle is from 2 to 3 feet long and from 3 to 4 inches thick. These are placed in a scouring machine, which resembles a common mangle, and rolled backward and forward for 50 or 60 hours. The canvas becoming worn requires renewing every 8 hours, and fresh polishing materials are then added. The scouring and cleaning is continued for the best needles 7 or 8 days. When taken out of the canvas they are laid on tin plates, and a little girl is employed to place the heads all one way. This is done simply by wrapping a piece of wash leather around the fore finger, and pressing it against one end of the pile of needles, thus catching all the points which lie in that direction. All the imperfect needles are then removed, the remainder are placed in rows upon metal plates with the eyes projecting over the edge, and a red-hot iron plate is brought sufficiently near to produce a dark blue film upon the heads, which indicates a proper temper. The very delicate operation of drilling, or removing the jagged portions from the interior of the eye, follows. This is performed by a woman who has before her a 3-sided steel drill, revolving rapidly. Taking the needles in her hand and arranging them in the form of a fan, she brings them successively under the action of the drill, first on one side and then on the other, after bevelling off the sharp edge of the eye where it communicates with the groove, which is called counter-sinking. The drilling of the eye is a modern improvement, and requires a very steady hand. The points are finished upon a small rotating stone, and then polished on a wheel covered with buff leather, slightly coated with polishing paste. Lastly they are counted into quarters of hundreds, folded in colored papers, and labelled. For exportation these are made up into packets containing from 20,000 to 60,000 each. The processes above described apply only to the finer sorts of needles. In the heavier kinds, such as harness, upholsterers', sail, mattress, and book-binding needles, many of these operations are omitted. The French needles are generally made of iron wire which is converted in the course of the process by cementation into steel. The manufacture by this method is less difficult, but the needles are decidedly inferior to the English.—The imports of needles into the United States in the year ending June 30, 1859, amounted to $254,794, of which $217,384 were from England.

NEEDLES, The, a cluster of 5 pyramidal rocks in the English channel, lying off the W. extremity of the isle of Wight. They are composed of thick strata of chalk alternating with very thin strata of black flint. The waves are continually producing changes in their form. About 80 years ago the principal one, which was 120 feet in height, fell down, and almost entirely disappeared.

NEEF, or Neefs, Peter, the elder, a painter of the Flemish school, born in Antwerp in 1570, died in 1651. He was a disciple of Henry Steenwyck the elder, and like him was distinguished for his excellence in perspective and architectural views. He painted principally the interiors of churches and temples, and with such skill and delicacy that the most magnificent edifices would be represented in the small space of a cabinet picture, and the various decorations finished with the utmost precision and correctness. Many of these views are represented by torchlight. As he was deficient in designing figures, he often employed the Francks, Van Thulden, Jan Breughel, or Teniers to paint them; and his pictures, decorated by the two last, are consequently greatly enhanced in value.

NEELE, Henry, an English poet and miscellaneous author, born in London, Jan. 29, 1798, committed suicide, Feb. 7, 1828. He was the son of an engraver in the Strand, and in early life was articled to an attorney. Before his clerkship had expired he published a volume of poems, remarkable for their melancholy character. In 1827 he delivered a series of lectures on English poetry from Chaucer to Cowper. His other works are: "Dramatic Scenes," "The Romance of English History," and "Literary Remains," published after his death. He was engaged upon another work, when his intense application to study brought on a fit of insanity, during which he killed himself.

NEEMUCH, a town of Hindostan, in the territory of Gwalior, built on rising ground near the boundary between Malwah and Mewar, 371 m. S. W. from Delhi; pop. about 4,000. It is an important British military station, and has an extensive cantonment and a small fort. A mutiny of native troops took place here, June 3, 1857, and on Nov. 8 the British garrison was attacked by 5,000 rebels, who besieged them ineffectually for about a fortnight, and were finally driven off after attempting an assault.

NEES VON ESENBECK, Christian Gottfried Daniel, a German botanist and naturalist, born near Erbach in the Odenwald, Feb. 14, 1776, died March 16, 1858. He was educated at the gymnasium of Darmstadt, and from

1796 to 1799 at the university of Jena, where he studied medicine and the natural sciences, and became acquainted with Fichte and Schelling. After practising for a time as a physician, he was appointed in 1818 professor of botany at Erlangen, and in August of the same year was elected president of the Leopoldine academy of naturalists. In 1819 he was called to the newly founded university of Bonn, and with the help of his brother laid out the botanic garden there; and in 1830 he went to Breslau as professor of botany and director of the botanic garden. The latter years of his life were disturbed by his participation in the revolutionary movements in Germany. In 1848 he went to Berlin, but was exiled from that city in Jan. 1849. In Jan. 1851, he was suspended from the professorship in the university of Breslau in consequence of his connection with a political society called the fraternity of laborers, and by a royal decree was deprived, March 13, 1852, of his office. Without property, suspected by government, and surrounded by a numerous family, he was obliged to rely for support on the aid of his friends, and to sell his valuable library, and his herbarium, consisting of 80,000 specimens. One of the most distinguished of German botanists, he was honored with numerous dignities, and was elected a member of 77 learned societies. Goethe, in his "Metamorphosis of Plants," had advanced the theory that the various parts of the flower are all modifications of one common type, the leaf; and this theory Nees von Esenbeck demonstrated to be scientifically true in his *Handbuch der Botanik* (2 vols., Nuremberg, 1820–'21). Among his other botanical works are: *Die Algen des süssen Wassers* (Bamberg, 1814); *Das System der Pilze und Schwämme* (Würzburg, 1816); *Die Pflanzensubstanz*, written in conjunction with Bischof and Rothe (Erlangen, 1819); *De Cinnamomo* (Bonn, 1823); *Bryologia Germanica*, with 43 colored plates, in conjunction with Hornschuch and Sturm (2 vols., Nuremberg, 1823–'31); *Agrostologia Brasiliensis*, forming the first part of Martius's *Flora Brasiliensis* (Stuttgart, 1829); *Enumeratio Plantarum Cryptogamicarum Javæ et Insularum adjacentium* (Breslau, 1830); *Genera et Species Asterearum* (Nuremberg, 1833); *Systema Laurinarum* (Berlin, 1836); *Floræ Africæ Australioris Illustrationes Monographicæ* (Glogau, 1841); and *Systema Hepaticarum*, in conjunction with Gottsche and Lindenberg (Hamburg, 1844–'7). He began his long projected illustrated manual of universal natural history with a volume entitled *Die allgemeine Formenlehre der Natur* (Breslau, 1852). He early applied himself to the study of cryptogamous plants, in regard to which his researches were minute and extensive. His great work in this department is the *Naturgeschichte der Europäischen Lebermoose*, also mentioned under the title of *Erinnerungen aus dem Riesengebirge* (4 vols., Berlin and Breslau, 1833–'8). In the latter part of his life he devoted himself to speculative thought, and published (1841) *Die Naturphilosophie*, which he intended as the first part of a "System of Speculative Philosophy."

NEFF, Felix, a Swiss missionary, born in Geneva, Oct. 8, 1798, died there in 1829. He early entered the army, and was advanced to the rank of sergeant; but forsook the military career in 1819 to become a missionary in the valleys of the upper Alps. In 1821–'2 he visited the destitute districts of Grenoble and Mens in France; and in April, 1823, went to England, where he was ordained an Independent minister. After returning to Switzerland he resumed his labors in the Alpine glens, dedicating churches, organizing schools, and aiming incessantly to benefit the people; and the hardships to which he subjected himself finally destroyed his health. His life has been written by A. Bost (London, 1855).

NEGOTIABLE PAPER, either promissory notes or bills of exchange, payable to a payee or his order. In the article Exchange, Bill of, some of the general rules of the law of negotiable paper have been stated. In explanation of the central principle and foundation of this very peculiar system of law, we will briefly consider its origin and history. The earliest commerce must have been by barter, and therefore limited to the exchange of superfluities between neighbors. Then money was invented and used as the representative of all value and all property; and he who had any thing to spare could exchange it for money, in which its value was vested, and this value could be retained by him who held it until he wished to exchange it for something he needed to use. It was an immense step thus to obtain a representative of all value; and the utility of it grew with the increasing commerce of the world, and was found adequate to the wants of this commerce until a few centuries ago, when the next step was taken, and something was found which is the representative of the representative of all value; and to this last invention the enormous increase of commerce since it came into use must be ascribed. As a bag of coin represented the value of 100 oxen, now a strip of paper represents the value of barrels of gold. But while the principal benefit of negotiable paper is due to the fact of this perfect representation of all value, there are two other utilities attached to it of almost equal importance. One of these is the facility it offers for paying distant debts without transfer of money or property, by making debts in one place pay debts in another, through the instrumentality of bills of exchange. The other is the method it offers of accumulating credit and employing the whole mass as money by means of successive indorsements. Such a transaction as a request by one in Rome to his debtor in Athens, to pay the debt to some one there whom the creditor in Rome owed, must have taken place often from the first beginnings of foreign commerce, as is intimated under Exchange, Bill of, where reference is made to the probable origin and history of bills of exchange. We will add only, that the many and inconsistent theories which refer the invention to the Jews, who made use of it to transfer their property from countries in which they were threatened with persecution and robbery, to others where they were safer; to the Guelphic Florentines when they were exiled from Italy by the victorious Ghibellines; or to the Lombard merchants who were driven from country to country, perhaps for their oppressive usury, and more probably for their wealth; all of these only prove that about 6 centuries ago the bill of exchange came into use among merchants and capitalists in western Europe, and nothing more is certainly known about it. It was not until long afterward that negotiable promissory notes were used. Indeed, about the year 1700, a disinclination to admit them to the privileges of negotiability was so distinctly indicated by the English judges (chiefly by Lord Chief Justice Holt in 1702), that in 1704 it caused the statute of 3 and 4 Anne, ch. 9, by which it is enacted that they should be "assignable and indorsable over in the same manner as inland bills of exchange are or may be by the custom of merchants." It was by merchants, who could not but see the vast advantage of bills of exchange, that they were so firmly established as instruments of commerce, that the courts were compelled to recognize them. When, at a later period, the frequent use of negotiable promissory notes brought them before the courts, resistance was made; but the usefulness of the thing and the power of mercantile usage overcame this resistance, and in fact caused the enactment above referred to. The secret of this resistance lies in the fact, that the negotiability of instruments, from which the whole of their mercantile value is derived, is an absolute exception to, or rather comes into decided conflict with, the best established principles of the common law. To explain this, we must refer to the ancient rule, that no chose in action can be assigned. A chose in action (which means any debt, or claim, or interest not in possession of the holder) is only a right to recover something by an action, or, in other words, it is a right to go to law; and the courts, both of law and equity, had settled upon rules, of which the purpose and effect were to prevent the assignment or transfer of such a right of action, in a manner detrimental and unjust to the party sued. The assignee was obliged to bring his action in the name of the assignor. The reason was, that the assignee must hold the debt, subject to all the equitable defences, or equities of defence (by which legal phrase is meant defences grounded in equity), which the debtor might have. For example, if A owes B $1,000 for goods bought, and gives B some receipt or other instrument showing this; and A soon pays B $800, and then $800 more; and B, not telling C of this, sells the debt to C as if it were still $1,000, and C sues it; now if C sues in the name of B, that is, if the action is B *vs.* A, there is nothing to prevent A from showing that he has already paid $600. But if the action stands C *vs.* A for the original debt, there might be at least a formal difficulty in permitting A to show what he had paid B. It should be observed, that if, in the case supposed, C sues A in the name of B, A cannot set up as a defence any payment which he had made to B after he had notice of B's transfer to C, because this would not be equitable, but rather a fraud upon C. And it may further be remarked, that in those of our states in which the assignee of a chose in action may or must bring his action against the debtor in his own name, these equitable defences are all preserved to the original debtor. Now the rule is precisely otherwise in regard to negotiable paper. Here no equitable defences of this kind are permitted against a party who holds the paper by indorsement, and for value. This is what is meant by the negotiability of a promissory note; and it is secured by the words "or order." If A, in the case before supposed, gave B his note, promising thereby to pay him, without the words "or order," $1,000 in 6 months, and saw fit to pay him the two sums of $800 even in 2 and 4 months, and afterward B sold the note to C, A could show in an action against him what he had paid, and would be held to C only for the balance; for by such a note he promises to pay B $1,000, and does not promise to pay that sum to anybody else. But if the note promised to pay B "or his order," A has now given paper which may go forth into the community and pass from hand to hand, carrying his credit for the sum named with it; he promises now to pay the whole sum, not to B only, but to anybody else who owns the note by B's order, and who presents it to him at maturity. If therefore he chooses to pay B any part of the amount before maturity, without having the payment written upon the note itself, he pays the money at his own risk, and must lose it. And B exercises his right to order the payment to be made to another person by indorsing the note; that is, by writing his name on the back. A note or bill is said to be negotiable when thus payable to order, because by these words, or rather by this quality of transferableness which these words give, the note becomes capable of being used in business (the Latin word *negotium* meaning business), as an instrument of business; that is, as money itself could be used, or as the representative of money; and it is said to be negotiated, when it is so transferred by indorsement.—It is a perfectly well established rule of law, made in fact inevitable by the nature and use of money, that money, or coined gold and silver, differs from all other property in the following particular. If a man loses his watch or is robbed of it, and the finder or robber sells it for value to a perfectly innocent purchaser, who sells it to another, and he to another, and so on, the owner can take it wherever he can find it, for no buyer acquires the slightest property in it against the owner. But if a man loses or is robbed of gold coins, and the finder or robber pays them away to an innocent party in the purchase of goods, the owner loses his money. He cannot reclaim it unless by proof that the receiver of it knew when he took it that it belonged to some one other than the holder. Now this is precisely so in relation to promissory notes or bills of exchange, payable to order or to bearer. A familiar example may be found in bank notes, which are only promissory notes payable to bearer, and which stand exactly on the footing of coined money, in that any one receiving them innocently, for value, holds them against any original owner. For a while the law was, in England at least, that one who purchased negotiable paper "under suspicious circumstances" could not hold it against a true owner, or recover from promissor or indorser. But the merchants and bankers of London convinced the courts (so says Lord Campbell in his "Life of Lord Chief Justice Tenterden") that this rule was a very dangerous one; and after a while the law was established there, as it is here, that nothing is a defence against a holder for value but proof of actual fraud; that is, proof that he took it with actual knowledge that the party from whom he took it had no property in it, and no right to transfer it. In Goodman *vs.* Harvey (4 Adolphus and Ellis, 870), Lord Chief Justice Denman says: "We have shaken off the last remnant of the contrary doctrine." And why? In order that negotiable paper might become the adequate instrument of business, as the word negotiable implies; and for this end that it might represent money, and take the place of money, and possess in all the transactions of business all the immunities and privileges of money. If we understand clearly this principle and purpose of negotiable paper, or rather of the rules of law in relation to negotiable paper, we shall be able to understand those rules. It is for this purpose that all those rules aim at giving to negotiable paper the certainty of money; of making it tell its own story as money does; and, in few words, of enabling every person who holds it to use it precisely as he would use money, with the additional advantage that he may, by his indorsement, add his own credit to that which the paper already holds. It is to a misapprehension of this principle and purpose that we owe very much of the conflict and uncertainty still hanging over some parts of the law of negotiable paper. These rules are numerous. They form a beautiful, but an extensive and an intricate system. Even an indication of all of them, sufficiently full to be intelligible, would occupy more space than we can give to this subject. That part of this law which refers especially to bills of exchange has already been treated of under that head. In the present article we shall endeavor to give only those general rules and fundamental principles which will enable any one not only to form a good idea of the whole system, but to answer almost any question which may arise in reference to it.—Mr. Chitty says that the most usual form of a negotiable promissory note in England is: "£50 (or other sum). London, 1st Jany. 1860 (or other place or date). Two months after date (or on demand, or any other specified time), I promise to pay to Mr. A. B. or order fifty pounds, value received. (Signed) C. D." A more common form in America is: "New York, Jany. 1st, 1860. Value received, I promise to pay A. B. or order one thousand dollars in two months. C. D." But no especial form is necessary. The essential things are, a distinct promise, and sufficient certainty as to the payee, the payer, the amount, and the time of payment. And we must remember that the one purpose of all these certainties is to make the note, as far as the law can make it so, the absolute equivalent of money. As to the certainty of the payee, he may be either the original payee, or one who is made a payee by the indorsement of an original payee or of an indorsee; for every indorsee may become an indorser. If the note is not payable to bearer, nor to any payee by name or description, it is not a promissory note; but it may be payable "to the trustees under the will of (or the executors of the will of) A. B., or their order;" for such description defines them as well as a name. If it be payable to A or B it is bad, because it is not certain which is the payee. Of the certainty as to the payer, he must be, first, the maker, and then the indorsers in their order. He must be distinctly designated; and if it be signed in the alternative, "A or B," it is not enough. It has been held that signature by pencil, and even by initials, was sufficient. But we think these decisions forgetful of the purpose of negotiable paper, which certainly ought, in our judgment, to be signed in the ordinary way, if the paper is to be used in the ordinary way of transacting business. As a promissory note, like a bill of exchange, is intended to be the equivalent of money, it should be payable in money. On this point there is a singular difference between the law of England and that of some of the United States. There, bank of England notes are a lawful tender, excepting when paid by the bank itself, which is bound to give specie; and yet paper promising to pay "in cash or bank of England notes" is not negotiable, because not payable in money. Similar doctrine is held in Massachusetts, Vermont, Pennsylvania, Tennessee, Michigan, and perhaps some other states. But in New York, Ohio, Alabama, and Arkansas, it is sufficient if they are payable in "good current bills of the state," and in some states even less accuracy than this is required.—We proceed now to speak of indorsement; first premising, that an acceptor of a bill of exchange stands in the same position as the maker of a promissory note; while the drawer of a bill, who is responsible if the drawee refuses to accept, or to pay the bill, stands in the position of a first indorser. All that is said therefore of indorsement, of demand and notice, and liability, applies (this being understood) equally to bills of exchange and to promissory notes. Negotiable paper, we shall see, is often transferable by delivery; but it is by indorsement that it is properly transferred; that is, the payee, whether an original payee or one who is indorsee, writes his name on the back of the paper, and delivers it to him who is to be the holder. As this indorsement is the exercise of the right to order it paid, no one can indorse the paper who has not this right; that is, no one but a payee. And yet nothing is more common than for many parties to write their names one under the other, and then they stand as first, second, third indorser, and so forth. The explanation of this is, that the first payee, to whom or to whose order it is payable, may indorse it either in full or in blank. He indorses it in full if he writes, "Pay to A. B. or order," and then signs this; and now he makes A. B. the payee, and A. B. and nobody else can indorse it. But he indorses the paper in blank when he writes only his name with nothing over. As yet, then, he makes nobody the payee. But any one to whom he gives it, or any one to whom it is subsequently given and who becomes the lawful holder of the paper, may write over the name of the payee (or indorser) the name of any person whom he chooses to make indorsee. When he has thus filled the indorsement, the indorsee alone can indorse it further. Now if a note has on its back the names of A, who is payee, and then B, then C, then D, &c., if E buys the note and sues it, he may write "Pay to B" over A's name, and "Pay to C" over B's name, and so on, and over the last indorser, "Pay to E." Thus the title is deduced to him, and all the previous parties are liable to him. For it is to be remarked, as of the essence of negotiable paper, that as A promises by his indorsement to pay if the maker does not, so B promises to pay if neither the maker nor A pays, and C promises to pay if neither the maker nor A nor B pays, and so on. In this way the accumulated credit of all the names is added to the note, because every person who signs the paper holds the guaranty of all before him, and is the guarantor of everybody who signs before him to all who come after him. It must be further remarked, that E, in the above case, may write over A's name, "Pay to E," and then he has good title to the note from A, and may hold him and the maker liable. But he can hold no one else. He has taken away the right of B to indorse, because he has made A indorse to E and not to B; and if B could not indorse legally, neither could C nor D. Thus a holder of paper with blank indorsements may select whom he will and discharge whom he will, by filling the indorsements so as to derive his title only from those whom he chooses to hold. There is, however, one important exception to this. In the case above supposed, E could not make title by filling indorsement from A to B, and from B to D (omitting C), and from D to E, and so hold D. The reason is, that by omitting C he has not only deprived himself of the power of calling on C, but he has deprived D also of this power; and therefore E shall not himself hold D. For every indorser has a right to look to every party before him, that is, to the maker and every prior indorser; and if a holder chooses to discharge any of these, he cannot hold any subsequent party, because he has lessened the guaranty to which that subsequent party may look. From what has been said, it will be seen that paper indorsed in blank is as much transferable by delivery as paper promising to pay to bearer: and if one holds paper indorsed in blank, or payable to bearer, and transfers this for value, by delivery only, without any indorsement or guaranty, he cannot be made liable for it. But paper payable to bearer cannot be indorsed with the same effect as paper payable to order, because there is no distinct payee. It is now common in our large commercial cities for sellers to take notes payable to the maker himself or his own order, and indorsed by him. Such notes can now be indorsed if any holder chooses to do so, or, if sold or discounted, can be transferred by delivery only. As indorsement has a twofold operation, first to transfer the paper, and then to guarantee its payment, these two operations may be separated. If an indorser writes over his name any refusal to guarantee, he passes the paper, but cannot be called upon. The usual way of doing this is by the words, "Without recourse," the rest of the sentence ("to me in any event") being supplied by law and custom.—It is much disputed what is the effect of indorsement by one not payee or indorsee; and the law on this subject differs in different states. Perhaps the law and the prevailing rule is, that if such a person writes his name on the back of a note when or before it is made or delivered, he may be held as if he wrote it on the face, that is, as maker; if after it is made and delivered, he may be treated as a guarantor, or the payee, if he elects to do so, may write his own name, or authorize a holder to write it, on the paper over the name already there, and thus make that the name of a second indorser.—It has been said, under EXCHANGE, BILL OF, that a bill imports value or consideration; and this is also true of a promissory note, whether the usual words "value received" be inserted or not. But a promissory note or bill, although not negotiable, differs from other contracts, not because it proves its own consideration or value, for it does not, but because it raises a presumption of this, and therefore a promissor cannot defend against his promise by saying that there was no consideration for it, and so put the plaintiff to prove consideration; but he may defeat the claim and avoid his promise, if he can prove that there was no consideration for it. But one of the most important peculiarities of negotiable paper is, that no party, maker or acceptor or indorser, can set up the defence of want of consideration, against any third party to whom it has been transferred for value without notice. It is precisely this, in fact, which characterizes negotiable paper and makes it the fitting instrument of business. A makes the paper, B, C, D, and E successively indorse it; and F, to whom E indorses it, need not inquire whether A or B or C or D received any consideration. They have put their names there, and that is enough. But if F sues E, the defendant may show that no consideration passed between him and F; because the rule of law is, that as between any immediate parties, that is, maker and payee, or indorser and indorsee, a defendant may show want of consideration from his transferee, the plaintiff, but cannot show this in defence against any distant party. The only exception to this rule is where the distant party took the note with notice of the want of consideration, and also that this want constituted a defence; for it is no defence where the paper is accommodation paper. Thus, if A, at the request of B, and without consideration, indorses his note for the purpose of lending him his credit, B cannot sue A; but any party, distant or near, who gets the paper for value, may sue A, even if such party knew the want of consideration, because he would have a right to consider A as intending to lend his credit. In some states there is some disposition to say that a purchaser of accommodation paper shall recover from the accommodation maker or indorser only so much as the purchaser paid for it; and this rule has been applied in some courts even to the purchaser of negotiable paper not accommodation. But if it were an honest transaction, the prevailing, and we think the better rule is, that he recovers its face.—As soon as negotiable paper has been dishonored, or is over due, it loses almost the whole of its peculiar character, and what may be called its privilege. The reason is the obvious one, that it is no longer capable of negotiation in the proper sense of the word; that is, it is no longer fit to be an instrument of business: first, because it is already discredited, and cannot be considered the equivalent of money; and next, because there is no longer any time fixed when it can be paid or converted into money. Hence it is now like paper not negotiable; that is, it may be sold or transferred as before, but the purchaser takes it now subject to the defence which could be made against it if it were still in the hands of the first party who transferred it after dishonor. Every indorser, including the drawer of a bill, who, we have said, holds the position of a first indorser, guarantees to a holder all prior parties; but this is only on condition that the holder does all that should be done by him to obtain the money from the prior parties, and to protect the interest of the parties looked to on their guaranty. This condition is absolutely and always implied by law; and the rules which grow out of it are of very great practical importance. They determine when, where, by whom, and in what way acceptance shall be requested, and payment demanded, and notice of non-acceptance or non-payment given to all parties entitled to notice.—A bill of exchange should be presented for acceptance during the usual hours of business. The drawee may answer at once, or he may take a day for consideration; but if he does not accept before the end of the day after presentment, he refuses to accept. If not accepted absolutely, but upon some terms or conditions, the holder may assent to these, and then hold the acceptor; but he must treat it as no acceptance and give notice accordingly in order to hold the drawer. When a bill is accepted it becomes like a note; and every bill and every note must be presented for payment, or in other words, payment of them must be demanded, and the demand must be such as the law requires, or all parties except the maker or acceptor are discharged. The paper must be so presented and demanded at maturity, by the holder or his authorized agent, of the acceptor or maker, on the very day on which it falls due, and in the usual and proper business hours of that day. Neither the bankruptcy, nor the insolvency, nor the absence, nor the death of the acceptor or maker is a sufficient excuse for not making the demand. For the insolvent may pay it, and if the payer is absent the demand must be made at his house or residence, or at his place of business; and if he be dead, it must be made of his executors or administrators. If the holder dies before the paper matures, and his executors or administrators are not appointed until after the paper matures, they must make the demand as soon after as they can; and if they make it without unreasonable delay, it is sufficient. Generally, when the demand cannot be made in the usual way at the time, the law permits the demand to be made within a reasonable time after the obstruction is removed. If the payee has absconded, or has no place of residence or business in the state, or is absent and cannot be found by diligent inquiry, demand is excused. But the same notice must be given of this non-demand as of non-payment; for the parties liable on the paper have not only a right to require demand upon all persons liable before them, but the further right to have notice given them if the paper be not paid. The purpose of this is to give them every opportunity of getting such security or indemnity as they can from the parties for whom they are to make payment. Once, the law said only that the notice must be given in a reasonable time; but now, all over the commercial world, the law itself defines this reasonable time. It requires that this notice be given on the day of non-acceptance or non-payment, or on the day immediately following. If the party entitled to notice lives at a distance, the notice should be given by mail, and must be put into the mail on the day of dishonor or the next day, if there be such a mail, and otherwise into the first mail that goes. A personal notice is, in general, good wherever given. And it should be personal, or in writing left at the residence or place of business, if the person giving the notice (as the notary or agent) lives in the same town or city with the party to whom it is given. He may send it even then by mail, but takes the risk of its reaching the payer in season; but if it is sent out of town, he may send it by mail, and this risk is not on the sender.—As the holder has one whole day to give his notice, so every one receiving notice has the same indulgence. Thus, if a note with 6 indorsers falls due, and the indorsee makes due demand of the maker, he must give notice of the non-payment to his indorser (who is the 6th) on the next day. That indorser has also until the next day to notify the 5th, and so on. Hence the first indorser will not get notice until the 6th day after non-payment; but now he will be held not only to his indorsee but to all persons below him, because he has had his due notice. No person, however, is entitled to the delay of more days than his own single day. Thus, if the indorsee of the 6th indorser notifies his indorser on the next day, he holds him; but if that indorser neglects to notify others, and the holder, learning this, on the 3d day notifies all the rest, all are discharged but the 6th indorser. Hence, it is usual for the holder not to take the risk of this, but to send notice himself to all the persons whose names are on the paper. (See Notary Public.) There is no precise form necessary for the notice. It should however state with sufficient distinctness what the paper is, its dishonor, and who the parties are, and the purpose of the notice. After due demand and due notice have fixed the liability of parties, it remains in force, and there is no need of immediate suit. This right to demand and notice may be waived by any party entitled to it, and he may do this by any words of sufficient meaning; the usual way is by writing over his name when he indorses: "Waives demand and notice." It should be remembered that a waiver of notice is not a waiver of demand; although a waiver of demand is perhaps a waiver of notice.—The demand must be made when the note falls due, or to use the common phrase, at its maturity. But this is not at the expiration of the time when the note is made payable on the face of it. The law adds three whole days, which are called days of grace. At first, these were, as the name intimates, days of favor or mere indulgence; but usage, and now law, have converted them into an absolute right. In most of the states, statutes provide that all negotiable paper, not payable at sight or on demand, is entitled to three days of grace, unless it be expressly agreed otherwise. This is sometimes done, but not often; and the words used for this purpose are, simply, "without grace." One distinction is important. These days retain so much of their original character of mere indulgence, that if the last day of grace falls on Sunday, or on any holiday on which payment cannot be demanded, it is now due, and demand must be made, on the Saturday or other day preceding. But if paper without grace, or any payment not entitled to grace, falls due on Sunday, or any other legal holiday, the payer now gains a day, because payment cannot be demanded until Monday, or the day after the holiday. When and in what manner negotiable paper should be protested for non-payment, and how payment may be made supra protest, or for honor, will be stated in the article Protest.—It should be added, that of late years some other instruments beside bills of exchange and promissory notes have been treated by courts as negotiable paper. Exchequer bills in England were so held; and then the bonds of foreign states, payable to the holder, were so considered. In the United States the same doctrine has been extended to state bonds payable to bearer and transferable by delivery; and in a recent case of much authority, it has been applied to railroad bonds. That it should be applied to the coupons on such bonds there can be no doubt. The effect of this doctrine is, that if a thief or finder of any of these instruments sells or transfers them for value to any person not having knowledge of his want of title, the purchaser would hold them against the original owner. Hence the not uncommon advertisements, that such instruments have been stolen or lost, and all persons are warned not to buy them because payment has been stopped, would have no effect against any person whom this notice did not reach. The law would be otherwise in relation to common bonds, or deeds, or any other instruments which were not negotiable. In that case, whether the notice was or was not given, the true owner would not lose his property by a sale or transfer by one who had no right to make it.

NEGRILLO, one of the 11 races of man enumerated by Dr. Pickering, corresponding to the pelagian negroes of Dr. Prichard, and the *negritos del monte* of the Spanish voyagers. They are tribes of small, woolly-haired blacks, found in the interior of many of the islands of the East Indian archipelago, and in the mountainous regions of the Malay peninsula; they occur as far west as the Andaman islands in the bay of Bengal, as far south as New Britain and New Guinea, and as far north as the Philippine islands; their traces may be seen in many islands where the tribes no longer exist, and they are believed by many ethnologists to have been the aboriginal inhabitants, afterward displaced by the Malay race; their interrupted geographical distribution indicates a more extensive area of occupancy than the race now presents. The stature is small, on an average not more than 4½ feet, and the figure lank and slight; the complexion is darker than that of the Malays, but lighter than that of the negro; the black color has a purplish or reddish tint; the hair is rather woolly, but without the knotty closeness seen in the negro; the forehead is low, the nose flat, and the lower part of the face more prominent even than in the negro; the beard is generally absent; the eyes are small and brilliant; the abdomen is protuberant, as in other races subject to great irregularity in the supply of food. The negrillos go nearly naked, wearing only a strip of bark or vegetable fibre around the loins; they live in bands of 50 or 60 in woods and mountains, wandering about in search of food, and are generally enslaved or hunted like wild beasts by the Malays. They are for the most part very rude in their habits, shy and suspicious of strangers, but hospitable if kindly treated, and generally inoffensive; where not oppressed by surrounding races they are intelligent, cultivating the soil, living in cabins, having most of the useful animals and plants of the Polynesians, and making canoes of rather indifferent workmanship compared with those of the maritime tribes. They inhabit Vanikoro, the scene of the shipwreck of La Pérouse; Capt. Dumont d'Urville, in the *Voyage de l'Astrolabe*, mentions the remarkable peculiarity of a state of active war existing between the people of different districts, the chiefs remaining friends. M. de la Gironière, in his "Twenty Years in the Philippine Islands" (New York, 1854), devotes a chapter to the Ajetas or the negrillos of the island of Luzon. Making due allowance for exaggeration, these people must there present rather a brutish appearance; they are armed with lances of bamboo, palm bows, and poisoned arrows; their food consists of roots, fruits, and the scanty products of the chase eaten nearly in a raw state; their language seems a monkey-like jabber, though in some places they speak a dialect of the Malay; they are very active, fleet runners, and expert climbers. Having hardly any idea of religion, they have a great veneration for the dead and respect for old age; they are not polygamous; they seem to have no instruments of music; old persons, especially the females, are positively hideous.

NEGRO, a name properly applied to the races inhabiting the African continent, principally between lat. 10° N. and 20° S., and to their descendants in the old and new world; it does not include the northern Africans (like the Egyptians, Berbers, Abyssinians, Nubians, &c.), though in popular language, especially in the older writings, it comprises these and other dark-skinned nations, who are not, however, characterized by the crisp hair of the true negro; in some of the border countries there has been considerable intermixture of negro blood and dialects. The Hottentots in the south do not belong to the negro race. The term negro, therefore, is not synonymous with African, and is not a national appellation, but denotes an ideal type constituted by certain physical characters, such as are seen in the people of the coast of Guinea, viz.: black skin, woolly hair, flat nose, thick everted lips, and a prognathous form of skull. Negroes occupy about one half of Africa, excluding the northern and southern extremities, but including its most fertile portions. Out of Africa, negroes are found in the United States, the West Indies, Brazil, Peru, the Cape Verd islands, and Arabia. In Brazil, the Spanish West Indies, and the United States, they are mostly in the condition of slavery. They are rare in Europe, Polynesia, and Australia, and when found are not enslaved. Negroes were nearly unknown to the Hebrews and the Homeric Greeks; the Egyptians, however, about 2300 B. C., became acquainted with negroes through the conquests of their rulers, and represented them on their monuments as early as 1600 B. C.; for nearly 35 centuries the type has remained unchanged in Egypt. Negroes were unknown to the Greeks until the 7th century B. C., their Ethiopians being merely any people darker than the Hellenic, like the Arabs, Egyptians, Libyans, or Carthaginians, none of which are negroes. The typical negroes of the Guinea, Gold, and Slave coasts are generally rude and nearly naked savages, of a deep black color and ugly features; in the interior, many of the tribes, like the Fan and others visited within the last 5 years by Mr. Du Chaillu, and described in his work (New York, 1861), are fierce cannibals, but fine-looking, warlike, ingenious, and skilful in the working of iron. Those on the Slave coast are the most degraded, selling their neighbors to slave dealers. In the vast regions explored by Barth, Livingstone, Du Chaillu, and other recent travellers, there are many tribes, more or less savage, for an account of which the reader is referred to their works. The Caffres of South Africa may also be classed among negroes, as well as the fine and ferocious races of Mozambique and the E. coast of Africa.—The skin of the negro is soft and silky, dull cherry red in the infant and growing black very soon; it differs from that of the whites principally in the greater amount of pigment cells in the *rete Malpighii* (the epidermis being uncolored), and in the greater number of cutaneous glands. The hair, though called wool, does not present the characters of the latter, especially the imbricated projecting scales, and differs but little from that of the other races except in color and in its curled and twisted form; it is harsh and wiry, and, according to some microscopists, more or less flattened, grooved longitudinally, lying perpendicularly in the dermis and piercing the cuticle in this direction, the coloring matter being diffused throughout its substance, and, in a few instances, so imbricated as to be capable of felting like wool. The skull is long and narrow, with a depressed forehead, prominent occiput and jaws, a facial angle of 70 to 65 degrees, and an internal capacity of about 82 cubic inches; a peculiarity of some negro crania, though by no means constant, is that the sphenoid does not reach the parietal bones, the coronal suture joining the margin of the temporals; the skull is very thick and solid, as would be indicated by the negro's favorite mode of fighting, both sexes butting like rams, and so flat that burdens are easily carried upon it. The stature of the negro is seldom 6 feet, and rarely below 5½; some of their figures are fine, especially the *torso*, and have been taken by Chantrey and other sculptors as models; in the female the development is so rapid that it is common to see childhood's natural grace combined with the prominent characters of maturity. Seen from behind, the spine usually appears depressed, owing to the greater curvature of the ribs; the nates are more flattened than in other races, and join the thighs almost at a right angle instead of a curve. Beside the characters already mentioned, may be noticed the projecting upper edge of orbit; broad retreating chin; great development of lower part of face; small eyes, in which but little of the yellowish white ball is seen; small, thick ears, standing off from the head, with a small lobe and a general stunted look; black iris; very wide zygomatic arches, giving large space for the muscles of the lower jaw; large and transverse opening of the nasal cavity. The pelvis is long and narrow, its average circumference being from 26 to 28 inches, instead of 30 to 36 as in the whites; this shape in the female, according to Vrolik and Weber, corresponds to the characteristic shape of the negro head; those writers consider it a type of degradation, as it approaches that of the *quadrumana* in the more vertical direction of the iliac bones and their less width, in the smaller breadth of sacrum, and in the consequent less extent of the hips. The bones of the leg are bent forward and outward, the tibia and fibula being more convex than in Europeans; the calves are very high; the feet and hands are flatter; the heel bone, instead of being arched, is continued in a straight line with the other bones of the foot, causing it to project more behind; in consequence of the longer lever thus obtained, less muscular force is necessary in the movements of the feet, and the muscles of the calf are consequently less developed; the shoulder blades are shorter and broader; the muscles have shorter bellies and longer tendons, as is very evident in the legs and arms. Negroes have less nervous sensibility than the whites, and are not subject to nervous affections; they are comparatively insensible to pain, bearing severe surgical operations well; the effects of opium and other narcotics appear rather in the digestive, circulatory, and respiratory functions, than in the cerebral and nervous system; they are little subject to yellow fever, and more to yaws and other cutaneous affections; they are generally very torpid under disease. They seldom have a fetid breath, but transpire much excrementitious matter by means of the glands of the skin, whose odorous secretion is well known; there is also much oily matter in the skin. The negro flourishes under the fiercest heats and unhealthy dampness of the tropics, where the white man soon dies, withstanding the virulent endemics and epidemics of the country; and the race does not diminish, like the aboriginal American, in contact with civilization, unless cruelly or injudiciously treated. The senses are acute; the voice in the males is hoarse and not powerful, and in the females high and shrill. Albinoes are not uncommon among negro races in all countries.—The African negroes display considerable ingenuity in the manufacture of weapons, in the working of iron, in the weaving of mats, cloth, and baskets from dyed grasses, in the dressing of skins of animals, in the structure of their huts and household utensils, and in the various implements and objects of use in a barbarous state of society. Their religion consists in the worship of idols and fetiches, representing a supreme power which they all acknowledge; they believe also in good and evil spirits, in witchcraft, charms and spells, omens, lucky and unlucky days, &c.; they make fetiches of serpents, elephants' teeth, tigers' claws, and many similar objects, and reverence wooden images and sacred things, which they think have received a peculiar power from their divinities to drive away evil spirits, and protect them from danger, disease, and witchcraft. They make prayers and offerings to their idols, and have sacred songs, festivals, dances, ceremonies, and places; they sacrifice animals and sometimes human victims, especially during funeral obsequies; they have their priests and holy men, who are also magicians and doctors. They believe generally in an after life, without any distinct idea of retribution, and some tribes in the transmigration of the human soul into a gorilla, or other beast, bird, reptile, or fish; they have great fear of ghosts and apparitions; they become ready converts to foreign religions, whether Islamism, Catholicism, or Protestantism. Being very fond of music, they have many ingeniously contrived musical instruments, generally of a noisy character; they have a keen sense of the ridiculous, and are of a cheerful disposition; though cruel to their enemies and prisoners, and setting little value on human life, they are naturally kind-hearted, hospitable to strangers, and communicative of their joys and sorrows; the females are remarkably affectionate as mothers and children, and as attendants on the sick, even to foreigners. They are less dirty in their persons and dwellings than most other barbarous races. They are ready to receive instruction, and to profit by it up to a certain point; quick to perceive the beauty of goodness, they generally appreciate the services of the missionaries in their behalf, and, were not their teachings counteracted by the intoxicating drinks brought by traders, they would probably soon, in outward observances if not in reality, merit the name of semi-Christian communities.

NEGRO, Rio. See Rio Negro.

NEGROPONT, or Egripo (anc. *Eubœa*), the largest island of the Grecian archipelago, separated from the coast of Attica by a narrow strait (anc. *Euripus*), called in its northern part the channel of Talanti and in its southern that of Eubœa or Negropont. The island lies N. W. and S. E.; length 100 m., breadth from 6 to 26 m.; area, 1,454 sq. m.; pop. in 1856, 68,813. The narrowest part of the strait is spanned by a bridge. The E. coast of the island is rocky and precipitous, and the interior is generally hilly, being traversed by a mountain ridge culminating near Delphi at the height of 6,259 feet, and abounding in varied and picturesque scenery. There are no rivers, the only streams being mere brooks, but the soil of the plains and valleys is exuberantly rich; the island is well wooded; pasturage is abundant, and grain, wine, oil, and fruits are produced, beside small quantities of wool, cotton, and the products of the pine. There are copper mines and quarries of marble; iron is said also to exist. Agriculture has been considerably improved by foreign settlers, but the native population is generally very poor. There are several good harbors on the W. coast, and two towns, Chalcis or Negropont, the capital (see Chalcis), and Karysto.—In pre-historic times Eubœa was colonized by Ionic Greeks, and was divided between 6 or 7 independent cities, of which Chalcis and Eretria were the most important. The whole island became subject to Athens after the Persian war, revolted in 445 B. C., was reconquered by Pericles, revolted again in 411 B. C., and from the time of Philip of Macedon was a portion of the Macedonian dominions, until the Romans in 194 B. C. made alliances with its chief towns, and enabled it to recover its independence. It fell, however, under the Roman yoke when Antiochus invaded Greece, and on the dissolution of the Byzantine empire was occupied by the Venetians. Mohammed II. took it from them in 1469. It now forms part of the kingdom of Greece, constituting together with the northern Sporades the province of Eubœa.

NEHEMIAH (Heb., whom the Lord consoles), a Jewish governor of Judæa, under the Persians, and cup-bearer to King Artaxerxes Longimanus. He was the son of Chakaliah, received the surname or title of Tirshatha, and is the author of the scriptural book which bears his name, a continuation of the historical book of Ezra. The dates of his birth and death are unknown. In the history of his people, in which he played a prominent and noble part during the period of the restoration under the Persians, he first appears in 444 B. C. (See Hebrews, vol. ix. p. 87.)

NEILGHERRY HILLS, or Neilgherries (Blue mountains), a remarkable mass of mountains in S. Hindostan, connected with the western Ghauts, about 60 m. E. from Calicut. They lie between lat. 11° 10′ and 11° 28′ N., and long. 76° 30′ and 77° 10′ E.; their greatest length at an elevation of 5,000 feet is 42 m., and their area at the same height is about 500 sq. m. The region to which they belong was transferred to the British in 1799 on the downfall of Tippoo Sultan. The surface of the mountains is undulating, varying from 6,000 to 7,000 feet above the surrounding plains, with some grand peaks rising up at intervals. Dodabetta, the highest of these, and the loftiest mountain in India S. of the Himalaya, is 8,760 feet above the level of the sea. The Neilgherries are composed of granite, which is covered with a rich black soil, often 10 feet deep in the valleys; there are some morasses, many of them consisting of peat, which makes excellent fuel. The base of these mountains, which covers a surface of some 200 m. in circumference, is clothed with a dense forest, swarming with wild animals of all descriptions, among which elephants and tigers are numerous. This barrier forest is exceedingly unhealthy, and for ages the great difficulties and dangers attendant upon passing it isolated the mountains from the surrounding country, and prevented their being explored. About 30 years ago two British officers succeeded in crossing the jungle and ascending the hills, and were rewarded by discovering a fine open grass country, with the vegetation of temperate regions. It was intersected by numerous streams, well stocked with cattle, and inhabited by a strange race quite different both in appearance and language from all others of Hindostan. These people are of a light complexion, have strongly marked Jewish features, and have been supposed by many to be one of the lost tribes. They build their houses in a peculiar manner, subsist chiefly upon the produce of their cattle, are tall, well formed, and handsome, but are very filthy in their habits. The mean temperature at Ootacamund, 7,300 feet above the sea, is 58°. A considerable town has sprung up at this place, in lat. 11° 24′ N., long. 76° 47′ E., near the centre of the plateau, and is frequented by European invalids from other places. There is another town on the Neilgherries, named Koonoor, at an elevation of 6,000 feet, where the climate is not quite so cold. The late Lord Elphinstone built an elegant mansion near the road between these towns, which is now occupied as a mission school for the education of children from the plains of European descent. All the fruits and vegetables of the temperate regions attain great perfection, and are cultivated for markets 200 and 300 m. distant. In places there are patches of strawberries growing wild several acres in extent. There are no dangerous snakes on the plateau, and no troublesome insects except fleas. Upon the ascending slopes there are several coffee plantations, and the mulberry tree thrives. Good roads have been opened through the surrounding forests, and a railway across the peninsula passes about 35 m. from Koonoor.

NEISSE, a fortified town of Prussian Silesia, on the right bank of the southern Neisse at its confluence with the Biela, 30 m. S. W. from Oppeln; pop. 17,000. The fortress, one of the most important in Prussia, was built by Frederic II. The town is clean and well built, and contains several manufactories of linens and woollens, and a number of distilleries. Neisse was besieged 3 times in 1428 by the Hussites, and taken by Frederic II. in 1741, by the Austrians in 1758, and in 1807 by the French, who held it till 1808.

NELLORE, a province of British India, in the Madras presidency, bounded by Gooutoor, Arcot, Cuddapah, and the bay of Bengal; area, 7,959 sq. m.; pop. 935,690. The crops chiefly grown are rice, dry grain, &c.; and saltpetre, salt, and tobacco are exported. The capital, Nellore, is on the bank of the river Pena, 18 m. from its mouth in the bay of Bengal, 100 m. N. from Madras; pop. 20,000.

NELSON. I. A central co. of Va., bordered S. E. by the James river and N. W. by the Blue Ridge, and drained by the Rockfish, Rock, and Tye rivers; area, 340 sq. m.; pop. in 1850, 12,758, of whom 6,142 were slaves. The surface is hilly and the soil fertile. The productions in 1850 were 353,432 bushels of Indian corn, 122,230 of wheat, 1,433,730 lbs. of tobacco, and 17,056 of wool. There were 37 grist mills, 15 saw mills, 6 tanneries, 4 wool carding mills, 4 distilleries, 21 churches, and 347 pupils attending public schools. A canal extending along the James river connects it with Richmond. The value of real estate in 1856 was $2,709,861, showing an increase of 30 per cent. since 1850. Capital, Lovingston. II. A central co. of Ky., drained by Rolling fork and Beech fork of Salt river; area estimated at 350 sq. m.; pop. in 1850, 14,789, of whom 5,130 were slaves. It has an undulating surface and a fertile soil, especially toward the N. The productions in 1850 were 1,070,066 bushels of Indian corn, 227,188 of oats, and 37,328 lbs. of wool. There were 45 grist mills, 6 saw mills, 5 tanneries, 2 newspaper offices, 13 churches, and 1 college. Capital, Bardstown.

NELSON, David, M.D., an American clergyman, born near Jonesborough, Tenn., Sept. 24, 1793, died at Oakland, Ill., Oct. 17, 1844. He was educated at Washington college, Va., and studied medicine in Danville, Ky., and in the Philadelphia medical school. He had but just entered on the practice of medicine when he joined a Kentucky regiment as a surgeon in the war of 1812, and proceeded to Canada. On his return he was near dying in the wilderness of fatigue and hunger, but was found just in time to save his life by his friend and relation, Col. Allen, who afterward fell at the river Raisin. He now resumed the practice of medicine. He had made a profession of religion in early life, but had relapsed into open infidelity. He at length, however, returned to his first religious convictions, forsook a lucrative professional career to become a minister in the Presbyterian church, and was licensed to preach in April, 1825. He preached for nearly 3 years in different parts of Tennessee, and was engaged, in connection with two other gentlemen, in the publication of a periodical called "The Calvinistic Magazine." In 1828 he succeeded his brother Samuel as pastor of the Presbyterian church in Danville, Ky. While resident in that place, Dr. Nelson was in the prime of his eccentric and extraordinary genius. There was something singularly striking, almost unique in his manner; his eloquence was fervid, powerful, and picturesque, and Dr. Breckinridge called him "one of the greatest preachers on earth." In 1830, being deeply impressed with the importance of increasing the means of education in the West, he removed to Missouri, and was chiefly instrumental in establishing a college in Marion co., 12 m. from Palmyra. Of this institution he became the first president. Its most distinctive feature was, that the students supported themselves by occupying a part of their time in manual labor. In 1836, owing to a disturbance arising out of the slavery question, Dr. Nelson, who was a warm emancipationist, removed to the neighborhood of Quincy, Ill., and established an institute for the education of young men, especially for the missionary life. This as well as the previous institution failed, partly from Dr. Nelson's acknowledged lack of business habits and qualifications. In the latter part of his life he was subject to attacks of epilepsy, which gradually impaired his faculties. Dr. Nelson published a work on "The Cause and Cure of Infidelity," which has passed through many editions, beside many contributions to the public journals of the day.

NELSON, Horatio, Viscount Nelson of the Nile, a British admiral, born at Burnham Thorpe, Norfolk co., Sept. 29, 1758, killed in the battle of Trafalgar, Oct. 21, 1805. His father was rector of the parish of Burnham Thorpe, and the early life of the son was marked throughout by the indomitable energy and the adventurous and fearless spirit for which he afterward became distinguished. Although of a slender frame and delicate constitution, he left school at the age of 12, and entered as midshipman on board the Raisonnable, 64, destined for the Falkland islands, and commanded by his uncle, Capt. Maurice Suckling. But this expedition having been given up, he went in a merchant ship to the West Indies, whence he returned with a great horror of the royal navy. In 1773, the Racehorse and the Carcass having been fitted up for a voyage of discovery to the north pole, under the command of Capt. Phipps, Nelson, although a boy, was appointed coxswain of the latter vessel. On returning he was placed on board the Seahorse, 20, which sailed for the East Indies in the squadron of Sir Edward Hughes. But the climate of India soon prostrated him, and in 18 months he was compelled to return to England with an enfeebled body and despondent spirits. Recovering his health on the voyage home, he was appointed acting lieutenant to the Worcester, 64, and subsequently 2d lieutenant to the Lowestoffe, 32, having passed with credit an examination for a lieutenancy, April 8, 1777. The Lowestoffe was employed against the French and American privateers, who were harassing the British trade in the West Indies. On one occasion, an American ship having struck its colors, the 1st lieutenant, after a trial, deemed it too dangerous to attempt taking possession of the vessel, as the sea was running high. "Have I then no officer who can board this prize?" exclaimed the captain indignantly. Seeing the master about to volunteer, Nelson stopped him, leaped into the boat, saying: "It is my turn now; if I come back, it will be yours," and returned, having boarded the ship. He soon afterward became 1st lieutenant on board the Bristol flag ship; in Dec. 1778, was appointed commander of the Badger brig, and post-captain, June 11, 1779, when he was assigned to the Hinchinbrook, 28, in which he distinguished himself at the siege of Fort San Juan and took the island of St. Bartholomew. But the crew of the Hinchinbrook were decimated by the pestilence, and its commander, worn out by sickness and fatigue, was forced to return to England. Having been restored by the Bath waters, he was appointed to the Albemarle, 28, and in the winter of 1781–'2 cruised in the North sea, where he gained considerable knowledge of the Danish coast and its soundings. On returning in April, 1782, he was ordered to Quebec, and thence sailed with a convoy to New York; he there joined the fleet under Sir William Hood, and with him went to the West Indies, where he remained till the peace of 1783. After his arrival in England he retired to St. Omer, but in the spring of 1784 took command of the Boreas, 28, ordered to the Leeward islands. As the Americans were attempting to establish an independent commerce with the West Indies, Nelson resolved to enforce the navigation act, and with that view seized 4 American vessels with freight at Nevis, carrying island colors. Although the ships were ultimately condemned in the admiralty court, his course caused him much trouble and brought him no credit either with the colony or home government. At Nevis, March 11, 1787, he was married to Frances Herbert Nisbet, widow of Dr. Nisbet, and daughter of Mr. Herbert, president of that island. On its return, the Boreas was kept 5 months at the Nore as a slop and receiving ship; and this and other indignities so exasperated Nelson, that he determined to resign his commission. This resolution was given up after his favorable reception at court; but he retired to the parsonage house at Burnham Thorpe. While there a writ was served on his wife on the part of the American captains, who laid their damages at £20,000. He indignantly wrote to the treasury that if he were not supported he would take refuge in France. "If sixpence would save me from prosecution," said he, "I would not give it." The government returned a satisfactory answer, and he was not further troubled. When the war with France broke out he was appointed, Jan. 30, 1793, to the Agamemnon, 64, and joined the Mediterranean fleet commanded by Lord Hood. By him he was sent with despatches to Naples, where he made the acquaintance of Sir William and Lady Hamilton. Subsequently he commanded a small squadron sent to Corsica to coöperate with Paoli against the French, and took Bastia, May 19, 1794, after a siege of 7 weeks. The Agamemnon was then ordered to Calvi to assist Gen. Sir Charles Stuart in the siege of that place. Here Nelson lost an eye from sand and small gravel driven into it by a shot striking the ground near where he stood. His name was not mentioned in the "Gazette," however, and he keenly felt the neglect. Afterward serving under Admiral Hotham, who had succeeded Lord Hood, he distinguished himself in the engagement with the French fleet, which had come out from Toulon to give battle to the English, and boarded the Ça Ira and the Censeur, the only two ships taken. About this time he was made colonel of marines, and, hoisting a commodore's pennant, proceeded to the coast of Italy, blockaded Leghorn, and superintended the evacuation of Corsica. In sailing with a convoy to Gibraltar, he fell in with the Spanish fleet at the mouth of the straits, and on Feb. 13, 1797, joined, with the intelligence, Admiral Sir John Jervis, then commanding the Mediterranean squadron. By him he was appointed to the Theseus, 74, and participated in the battle of Cape St. Vincent, which took place on the morning of the 14th. In this battle Nelson disobeyed the admiral's orders to tack in succession, and, seconded by Trowbridge in the Culloden and Collingwood in the Excellent, bore down upon 7 of the enemy's fleet, attacked the Santissima Trinidada, 136, passed on to the San Nicolas, 84, which he carried by boarding, and led his men on to the San Josef, 112, lying alongside, and compelled it to surrender. For his conduct Nelson, who had been created rear admiral before the action was known in England, was knighted, and was made a companion of the order of the bath; and Admiral Jervis was created Earl St. Vincent. In April, 1797, he was sent to bring away the troops from Porto Ferrajo, and shortly after commanded the inner squadron in the blockade of Cadiz. On July 14 he was sent to attack Santa Cruz, Teneriffe, and carried the place, but, not being able to capture the citadel, was forced to retire. In the attack his right arm was shattered by a grape shot. Immediate amputation became necessary, and for the cure of the wound he was obliged to return to England. There numerous honors awaited him. Congratulatory letters were addressed to him by the first lord of the admiralty and the duke of Clarence; the freedom of the cities of London and Bristol was conferred upon him; he was made a knight of the bath, and received a pension of £1,000. In the memorial which he was called upon to present before receiving such a grant, he stated that he had been in 4 actions with the fleets of the enemy, in 3 actions with frigates, in 6 engagements against batteries, in 10 actions in boats employed in cutting out of harbors and destroying vessels, and in taking 3 towns; that he had also served on shore with the army 4 months, and commanded the batteries at the sieges of Bastia and Calvi; that he had assisted at the capture of 7 sail of the line, 6 frigates, 4 corvettes, and 11 privateers of different sizes; that he had taken and destroyed nearly 50 sail of merchant vessels, and had been engaged against the enemy upward of 120 times; in which service he had lost his right eye and arm, and had been severely wounded and bruised in his body. In April, 1798, hoisting his flag in the Vanguard, 74, he rejoined Earl St. Vincent at Gibraltar, and on May 9 sailed from that place with a small squadron to ascertain the design of the vast armament fitting out at Toulon. On the 22d he encountered in the gulf of Lyons a sudden storm by which his ship was dismasted, and in the fog that followed he missed the French fleet, which had sailed for Egypt with Bonaparte and his army on board. Having received a reënforcement of 10 ships of the line and one of 50 guns, he sailed for Alexandria; but not finding the enemy there, he returned to Italy to obtain supplies. Singularly enough, on the night of June 22, the French and English squadrons crossed each other's track without either being aware of the neighborhood of their enemy. Having obtained supplies at Syracuse, Nelson sailed again for Egypt, and on the morning of Aug. 1 descried the tricolor floating from the walls of Alexandria and the bay of Aboukir covered with ships. For many days previous he had felt despondent; now his spirits revived. "Before this time tomorrow," said he to his officers when leaving him to take command of their vessels, "I shall have gained a peerage or Westminster abbey." The battle began at 6¼ P. M., and, with an interruption of 10 minutes, when the French flag ship L'Orient blew up, lasted till daybreak. (See ABOUKIR.) Nelson declared victory a too feeble word for the result of this battle, and called it a conquest. Had he been provided with small craft, he could have destroyed in a few hours the store ships and transports in the harbor of Alexandria; and so deeply did he feel the want of these, that in a despatch to the admiralty he declared: "Were I to die this moment, want of frigates would be engraven on my heart." During the engagement Nelson received a severe though not dangerous wound on the head from a langridge shot. The news of the battle of the Nile was received with boundless enthusiasm by the enemies of France, and congratulations and rewards without number were showered upon the victorious commander. He was created Baron Nelson of the Nile, with a pension of £2,000 to himself and his two immediate successors; received magnificent presents from the grand seignior, the king of Sardinia, the king of Naples, the emperor of Russia, and the East India company; and the thanks of parliament and gold medals were voted to him and the captains engaged in the action. Seventeen days after the battle, Nelson sailed for Naples, and was received with great demonstrations of joy both by the populace and the court. Encouraged by his victory, the Neapolitan government broke openly with the directory, and sent an army under Gen. Mack against the French troops occupying the Papal States. But an incapable commander and cowardly soldiers were no match for the forces of France. The invading army was beaten back, Naples was entered in turn, the royal family compelled to flee, and the short-lived Parthenopean republic established. The king and queen and their suite were conveyed by Nelson to Palermo. The royalists, however, soon took the field under the lead of Cardinal Ruffo, and advanced upon the city of Naples. The garrisons of the Castello Nuovo and the Castello dell' Ovo, consisting of Neapolitan insurgents, capitulated to the cardinal, June 23, 1799, on condition that they should be allowed to march out with all the honors of war, and that the persons in the forts and all prisoners taken by the king's troops should be unmolested or conveyed to Toulon and there set at liberty. The part taken by Nelson in annulling this capitulation has been condemned as an ineffaceable blot upon his fame by Southey and nearly all his other biographers; but the publication by Sir Harris Nicolas of the "Nelson Despatches" places his conduct in a much more favorable light. On the 24th Nelson arrived in the bay, and immediately ordered the flag of truce to be pulled down, on the ground that the action of the cardinal in granting a capitulation was not only unauthorized but in direct opposition to the commands of the king, whose orders were explicit not to treat with the rebels. On the next day, no steps having yet been taken to carry the capitulation into effect, he addressed a note to the garrisons, stating that he would not permit them to embark or leave those places, and their surrender must be at discretion. On the 26th the insurgents submitted, with full knowledge that the cardinal's conditions had been annulled, and were detained as prisoners until the arrival of the king, July 10, when they were given up to the Neapolitan authorities. That Nelson was justifiable throughout in this transaction is now admitted; that he acted with strict regard to honor and good faith is apparent from his treatment of the garrison of Castellamare, who having surrendered before his arrival were permitted to go free, although the officer who received their capitulation had no authority to grant them terms. The hanging of Prince Caraccioli, the Neapolitan admiral who had joined the insurgents and served under the "Parthenopean republic," has also been brought against Nelson as a crime. Caraccioli was accused of being a traitor, and having been captured and given up to Nelson was tried by a Neapolitan court martial, who condemned him to death, and submitted their sentence to Nelson as superior officer for confirmation. It has been charged that in these transactions the British admiral acted under the influence of Lady Hamilton, with whom his illicit connection had already commenced, but there is no proof that she had any thing to do with them. (See the "Nelson Despatches," appendix to vol. iii.) Although ordered by Lord Keith to sail with his whole force for the protection of Minorca, he continued in the bay of Naples, and succeeded in restoring the king to his dominions. For his services he received a sword splendidly enriched with diamonds, and was rewarded with the dukedom of Bronté, with a revenue of £3,000 a year. He soon after assisted Capt. Ball in the siege of Malta; but, mortified by the appointment of Lord Keith to the chief command in the Mediterranean, he returned to England through Germany in company with Sir William and Lady Hamilton, and landed at Yarmouth, Nov. 6, 1800, after an absence of 3 years. Honors of every kind awaited him; but in 3 months he was separated from his wife on account of his infatuated attachment to Lady Hamilton. His last words to her were: "I call God to witness that there is nothing in you or in your conduct that I wish otherwise." In Dec. 1800, a maritime alliance was formed between Russia, Prussia, Denmark, and Sweden in regard to the rights of neutral nations in war. For the purpose of breaking up this confederacy, a fleet of 52 sail was sent in March, 1801, to the Baltic under Sir Hyde Parker, Nelson consenting to act as second in command. The squadron passed the sound on the 30th, and entered the harbor of Copenhagen. To Nelson, at the head of 12 ships of the line and smaller vessels, making 36 in all, was assigned the attack; against him were opposed 18 vessels mounting 628 guns, moored in a line a mile in length, and flanked by two batteries. The action began about 10 A. M., April 2, and lasted 5 hours. About 1 o'clock Sir Hyde Parker made the signal for discontinuing. Nelson ordered it to be acknowledged, but, putting the glass to his blind eye, exclaimed: "I really don't see the signal. Keep mine for closer battle still flying. That's the way I answer such signals. Nail mine to the mast." By 2 o'clock, the Danish fleet being almost entirely taken or destroyed, he wrote to the crown prince the following note: "Vice-Admiral Lord Nelson has been commanded to spare Denmark when she no longer resists. The line of defence which covered her shores has struck to the British flag; but if the firing is continued on the part of Denmark, he must set on fire all the prizes he has taken, without having the power of saving the men who have so nobly defended them. The brave Danes are the brothers and should never be the enemies of the English." An armistice of 14 weeks was agreed to, and in the mean time the accession of Alexander to the throne of Russia broke up the confederacy, and left matters on their old footing. For this battle, which Nelson said was the most terrible of all in which he had ever been engaged, he was raised to the rank of viscount. On July 24 he was made commander-in-chief, from Orfordness to Beachy Head, of the squadron for the defence of England; and on Aug. 16, 1801, he attacked the flotilla at Boulogne, but was forced to retreat with considerable loss. After the treaty of Amiens he retired with Sir William and Lady Hamilton to his seat at Merton in Surrey. But war breaking out again, he was appointed commander of the Mediterranean fleet, and set sail thither on May 20, 1803. He immediately blockaded Toulon, but in spite of his utmost vigilance a fleet escaped out of that port on Jan. 18, 1805, and shortly afterward joined the Cadiz squadron. Nelson followed in pursuit to the West Indies, and back again to Europe, but being unsuccessful he returned to England. Upon the receipt of the intelligence that the combined French and Spanish fleets were in Cadiz, he resumed his command of the Mediterranean fleet, and encountered the enemy off Cape Trafalgar, Oct. 21, 1805. The force under him consisted of 27 ships of the line and 4 frigates; the force opposed of 33 ships of the line and 7 frigates. On that day he wore his admiral's coat, bearing upon his left breast the insignia of the orders with which he had been invested. To all remonstrance against wearing so conspicuous a uniform he replied, referring to the insignia: "In honor I gained them, and in honor I will die with them." At 11.40 A. M., while bearing down on the enemy, he hoisted the signal: "England expects every man to do his duty," which was received with tremendous cheering by the whole fleet. At 10 minutes after noon the action began. In the heat of the battle, about 1¼ P. M., he was struck in the shoulder by a musket ball. "They have done for me at last, Hardy," said he, as he was raised up from the deck; "my backbone is shot through." He was carried below, and the surgeon examining his wound pronounced it to be mortal. He continually expressed the greatest anxiety as to the result of the battle. At length Capt. Hardy came down from the deck, and congratulated his dying commander on having gained a complete victory. He did not know how many had struck, but 14 or 15 at least had surrendered. "That's well," answered Nelson, "but I had bargained for 20." Anxious that the vessels taken should be saved from the possible danger of a storm, he added in a stronger voice: "Anchor, Hardy, anchor. Do you make the signal;" an order which unfortunately was not obeyed, and in the gale that came up the following night all but 4 of the prizes were destroyed or lost. Next to his country, Lady Hamilton occupied his thoughts. "Take care of my dear Lady Hamilton, Hardy; take care of poor Lady Hamilton." A few minutes before he died, he turned to the chaplain, and said: "Doctor, I have not been a great sinner. Remember that I leave Lady Hamilton and my daughter Horatia as a legacy to my country." He then frequently repeated: "Thank God, I have done my duty." These were the last words he uttered, and at 4½ P. M. he expired without a groan. The body was placed in a coffin made out of the mast of the L'Orient. This singular gift had been presented him by Capt. Hallowell, and before Nelson left London for the last time he had called at his upholsterer's, and told him to get it ready, for he should soon require it. He was buried in St. Paul's cathedral, Jan. 8, 1806, and his funeral, conducted at the public expense, was the most solemn and magnificent spectacle which had ever been witnessed in England. Honors were heaped upon his family. His brother, the Rev. William Nelson, D.D., was created Earl Nelson of Trafalgar and Merton, with an annual grant of £6,000, and permission to inherit the dukedom of Bronté; £10,000 were voted to each of his two sisters, beside £100,000 for the purchase of an estate. A few hours before his death he appended a codicil to his will, in which he left Lady Hamilton as a legacy to his king and country, and his "adopted daughter, Horatia Nelson Thompson," to the beneficence of his country. "These," continues the document, "are the only favors I ask of my king and country at this moment, when I am going to fight their battle." This codicil his brother concealed until the parliamentary grant to himself had been completed; and to it and his dying request in behalf of the same persons the British people paid no attention.—Nelson is the greatest name in the naval annals of England. "His whole life," says Alison, "was spent in the service of his country; his prejudices, and he had many, were all owing to the excess of patriotic feeling; he annihilated the French navy by fearlessly following up the new system of tactics, plunging headlong into the enemy's fleet, and doubling upon a part of their line, in the same manner as Napoleon practised in battles on land. The history of the world has seldom characters so illustrious to exhibit, and few achievements as momentous to commemorate. But it is to his public conduct and genius afloat that this transcendent praise is due; on shore, he appears in a less favorable light. Vain, undiscerning, impetuous, he was regardless of his domestic duties; an ardent lover, he was a faithless husband. He was perpetually liable to the delusion of art, and sometimes seduced by the fascination of wickedness. These weaknesses were owing to the ardent temperament of his mind; they arose from passions nearly allied to virtue, and to which heroic characters in all ages have, in a peculiar manner, been subject." As he left no legitimate children, his viscounty became extinct, but the barony devolved by limitation upon his brother William, whose grandnephew Horatio, Earl and Baron Nelson and Viscount Merton, is the present representative of the family. Horatia Nelson was the admiral's natural daughter, probably by Lady Hamilton; for it is a singular fact that while he was undoubtedly her father, her maternity is by no means so certain, and there are not wanting critics who maintain that the attachment between Nelson and Lady Hamilton was purely Platonic. Horatia was married to the Rev. Philip Ward, an English clergyman.—Among the biographies of Lord Nelson we may cite Clarke and MacArthur's "Life of Admiral Lord Nelson" (2 vols. 4to., 1809); Robert Southey's "Life of Nelson" (8vo., 1831); and Pettigrew's "Memoirs of the Life of Vice-Admiral Lord Viscount Nelson" (2 vols. 8vo., 1809). His letters to Lady Hamilton (2 vols. 8vo.) were published in 1814, and the "Letters and Despatches of Lord Nelson," edited by Sir Harris Nicolas (7 vols. 8vo.), in 1845-'6.

NELSON, Robert, an English theological writer, born in London, June 22, 1656, died there, Jan. 16, 1715. He was educated at Trinity college, Cambridge, and at an early age was elected a fellow of the royal society. Afterward he visited France and Italy in company with Halley. He enjoyed the friendship of some of the most eminent divines in the English church, particularly Bull, Tillotson, and Lloyd, but did not himself take orders. At the revolution he refused to take the oaths of allegiance and supremacy, but ultimately suffered his objections to be overcome by Dr. Ken, one of the deprived bishops. His most important works are: "A Companion for the Festivals and Fasts of the Church of England" (1704); "The Great Duty of Frequenting the Christian Sacrifice" (1707); "The Practice of True Devotion" (1708); and "The Whole Duty of a Christian" (1718).

NELSON, Thomas, an American revolutionary statesman and soldier, born in York co., Va., Dec. 26, 1738, died there, Jan. 4, 1789. His father, William Nelson, for many years president of the colonial council, sent him in his 14th year to Cambridge, England, where, under the care of Dr. Porteus, he was educated at Trinity college. Such was the influence of the family in Virginia, that while he was on the voyage home he was elected a member of the house of burgesses, although he was then scarcely 21 years old. In his 24th year he married, and settled at Yorktown, where his family possessed great estates. Although leading the life of a man of leisure and culture, he became a decided partisan of the American cause in the controversy with the mother country, and rendered efficient service in that behalf in the house of burgesses. He supported the resolutions against the Boston port bill passed by the house in 1774; and upon the dissolution of the legislature by Lord Dunmore, he was one of the 89 members who entered into the association which, among other things, recommended the appointment of delegates from the several colonies to meet in a general congress. He was a member of the first convention which met at Williamsburg in Aug. 1774. In 1775 he was again a member of the provincial convention, and in July he was appointed colonel of the 2d of the 3 Virginia regiments ordered to be raised, a position which he resigned upon being elected a delegate to the continental congress. He was a conspicuous member of the convention which met in Williamsburg in May, 1776, to frame a constitution for Virginia; and was selected to offer the resolution instructing the Virginia delegates in congress to propose a declaration of independence. Subsequently he signed the declaration of July 4, 1776. In May, 1777, he was obliged by an indisposition affecting his head to resign his seat in congress; but in the following August, during the alarm occasioned by the entry of the British fleet under Admiral Howe within the capes of Virginia, he was appointed commander-in-chief of the state forces; and soon after, in response to an appeal from congress, he raised a troop of cavalry with which he repaired to Philadelphia. The danger apprehended from Howe's expedition having been averted, his corps was disbanded, and he resumed his duties as a member of the legislature. In this body he strongly opposed the proposition to sequestrate British property, on the ground that it would be an unjust retaliation of public wrongs on private individuals. In Feb. 1779, he again took his seat in congress, but was obliged almost immediately afterward by a return of his former indisposition to resign. In May, however, he was suddenly called upon to organize the militia to repel a marauding expedition which was ravaging the Virginia coast. On this occasion he sent many of his own servants to work for poor persons who had been drafted into the hastily raised levies. Congress having called upon the states for contributions to provide for the French fleet and armament, the general assembly of Virginia resolved early in June, 1780, to borrow $2,000,000 to be deposited in the continental treasury by the middle of the month. The public credit, however, was so low that there seemed little probability that the required sum could be raised. In this emergency Gen. Nelson came forward, and on his personal security succeeded in raising a considerable portion of the loan. About the same time he advanced money to pay two Virginia regiments ordered to the South, which had refused to march until their arrears were discharged. His ample fortune was now so seriously impaired, that he was involved in pecuniary embarrassments in the latter part of his life. In the spring of 1781 he redoubled his efforts to protect the state; and in addition to his military duties he was in June called upon to assume the functions of governor of the commonwealth, a position for which he was recommended by Jefferson, then retiring from office. Being thus armed with executive and military power, he hastened with all the militia he could muster to oppose the enemy, who were ravaging the country; and with a prompt waiver of his official rank, he did not hesitate to coöperate, as second in command, with the continental troops under Lafayette. Prevented by the distracted condition of the country from consulting his council or applying to the legislature, and obliged to perform many acts on his own responsibility, he exercised dictatorial powers; and it was in no small degree owing to his exertions that the American army was kept together during its stay in Virginia. His extra-legal acts were subsequently fully approved by the Virginia legislature. He participated in the siege of Yorktown as commander of the Virginia militia, and again displayed his disinterested patriotism by directing that his own house, the largest and best in the place, and therefore in all probability the head-quarters of Lord Cornwallis, should be bombarded, exclaiming to Gen. Lafayette: "Spare no particle of my property so long as it affords comfort or shelter to the enemies of my country." His services and those of the troops whom he had collected were highly commended in the general orders of the commander-in-chief, Oct. 20, 1781. The success of the American cause being now rendered sure, and his constitution being impaired by cares and fatigue, he resigned his office in Nov. 1781, and passed the rest of his life in retirement at his house in Yorktown or at a small farm in Hanover co., the remnants of his princely fortune, of which the greater part had been expended in the service of the country. He died so poor that his remaining possessions were sold at auction to pay his debts. His widow lived to be nearly 90 years of age, but neither she nor any of her descendants received any pecuniary recompense for the sacrifices made by her husband. Mr. Nelson's statue was one of the 6 selected to be placed around the Washington monument at Richmond, Va.

NELSON'S RIVER, of British North America, issues from the N. extremity of Lake Winnipeg, passes through a series of lakes, and falls into Hudson's bay, to the N. of Fort York, after a N. E. course of 300 m. It is the main channel of communication with the interior of the Hudson's Bay territory.

NEMEAN GAMES, one of the four great national festivals of the Greeks, so called from Nemea in Argolis, where they were held every 3d year. They were instituted by the seven against Thebes in commemoration of the death of the infant Opheltes, which had been destroyed by a dragon while Hypsipyle its attendant had gone to show the seven a well. On their return the seven slew the dragon and instituted funeral games. Other legends ascribe them to Hercules in honor of his destruction of the Nemean lion. It is probable, however, that these refer to a restoration of the ancient festival, and its alteration to a celebration in honor of Jupiter. At first they were of a warlike character, only warriors and their sons participating, but they were afterward thrown open to all the Greeks. The exercises consisted of horse racing, running in armor in the stadium, wrestling, chariot racing, quoit throwing, boxing, throwing the spear, archery, and musical contests. The prize was at first a chaplet of olive branches, but afterward one of parsley. The management of these games belonged at different times to Cleonæ, Corinth, and Argos. Philip of Macedon was once honored by the Argives with the presidency of the Nemean games; and at their celebration in 196 B. C., Quintius Flamininus proclaimed the freedom of Argos.

NEMESIANUS, MARCUS AURELIUS OLYMPIUS, a Latin poet, who flourished in the latter part of the 3d century A. D. From the epithet Carthaginiensis commonly coupled with his name, it is inferred that he was a native of Africa. He was the author of poems on hunting, fishing, and aquatics, all of which have perished except a fragment of the *Cynegetica*, or poem on hunting, which extends to 325 hexameter lines, and is remarkable for the neatness and purity of its style. This remnant was first published at Venice in 1534; the best edition is that of Stern (Halle, 1832).

NEMESIS, in Grecian mythology, a daughter either of Erebus or of Oceanus. She was a personification of conscience, and is mentioned by Hesiod in connection with Shame. It was believed by the Greeks that the gods were enemies of excessive human happiness, and that there was a power which preserved a proper compensation in human affairs, from which it was impossible for the sinner to escape. This power was embodied in Nemesis, who was in a special manner the avenger of family crimes, and was particularly worshipped at Rhamnus, Patræ, and Cyzicus. She was usually represented in works of art as a virgin, sometimes standing in a thoughtful attitude, holding in her left hand a bridle or branch of an ash tree, and in her right a wheel with a sword or scourge.

NEMESIUS, a Greek bishop of Emesa in Syria, who probably flourished about the beginning of the 5th century, and was the author of an extant treatise "On the Nature of Man." He was acquainted with all the physiological learning of his age, and his speculations touching the motions of the pulse and the uses of the bile have led some moderns to suppose that he was acquainted with the circulation of the blood and the functions of the liver. Like Plato he believed in the preëxistence of the human soul. The earliest separate edition of the work is that of Nicasius Ellebodius (Antwerp, 1565); the latest and best is that of C. F. Matthäus (Halle, 1802). There is an English translation by George Wither (London, 1636).

NENA SAHIB, the title of Dhundoo Punt, a Hindoo chieftain and a leader of the sepoy mutiny in 1857, born in 1824 or 1825. He was the son of a Brahmin of the Deccan, and when he was a little more than a year old was brought to Bittoor, where Bajee Row, the peishwa or chief of the Mahrattas, adopted him in 1827. On the death of Bajee without heir of his body in 1851, an estate in the neighborhood which had been bestowed upon him during pleasure by the British was declared lapsed to the East India company, as they had previously refused to recognize inheritance of lands by adoption, and a pension of $450,000 a year granted to him and his family in 1818 was also stopped. The Nena sent an agent to England to advocate his claims, but without success, and this supposed wrong he never forgave. He lived however in great apparent friendship with the English, imitating their customs as far as he could, and was permitted to occupy the town of Bittoor, where he possessed much wealth and influence. When the sepoy mutiny broke out in 1857, he was universally trusted by the English, who applied to him for a body of soldiers to guard the treasury at Cawnpore, which he immediately granted; but no sooner had the insurrection occurred at the latter place than he put himself at the head of the rebels (June 5), and killed all the Europeans that fell into his hands, among whom were two large parties, principally of women and children, who were endeavoring to escape down the Ganges from Futtehgurh. The English at Cawnpore in the mean time defended themselves until June 27, when they surrendered on the Nena promising to send them safe to Allahabad. They were permitted to embark, but immediately afterward fired upon, many being killed and the rest brought back to land. The men were put to death at once; the women and children, after surviving nameless outrages, were massacred July 15, the day before Havelock arrived at Cawnpore, and their bodies were thrown into a well. The Nena retreated to Bittoor, where Havelock defeated him on the 17th, driving him out of the town, and destroying his army. He soon collected another force, with which he followed Havelock into Oude, but afterward returned toward Cawnpore with the intention of attacking Gen. Neill, who was in garrison there with a small force. Reoccupying Bittoor, he threw out his left wing in the direction of Cawnpore, but it was driven back in confusion by Gen. Neill, Aug 15; and on the next day Havelock, who had returned from Oude, defeated his whole force in a sharp engagement. Owing to the exhaustion of the victors and their want of cavalry, the Nena escaped, and, without coming directly in contact with the British, except once more at Cawnpore, where Sir Colin Campbell defeated him, Dec. 6, continued an active and harassing warfare. On the occupation of Gwalior by the rebels in June, 1858, he was chosen peishwa of the Mahrattas, and his nephew Row Sahib was placed in command of the city. His subsequent career is difficult to be traced, for his energies were bent rather upon escaping pursuit than conducting offensive operations. Long after the other leaders had submitted or been captured, he continued, with the begum of Oude and about 10,000 rebels, to infest the northern parts of central India and the frontiers of Nepaul. A report that he died of fever in the latter part of 1859 was generally discredited, and it is uncertain whether he is alive or not. The last report concerning him (Aug. 1860) is that he had crossed the Himalaya in disguise into Thibet, and was encamped near the N. base of the mountains with about 10,000 men.

NENNIUS, an ancient British historian, supposed to have flourished in the early part of the 7th century. He was abbot of Bangor in Wales, and author of a history of the Britons from the arrival of Brutus the Trojan to A. D. 655. This work is entitled *Historia Britonum*, or *Eulogium Britanniæ*. The best edition of it is that of Stevenson (London, 1838). An English translation by the Rev. W. Gunn has been republished in Bohn's "Antiquarian Library" (London, 1848).

NEO-PLATONISTS. See ALEXANDRIAN SCHOOL.

NEOPTOLEMUS. I. The son of Achilles and Deidamia. He was originally called Pyrrhus from his red hair. When it was prophesied that Troy could not be taken without the aid of the son of Achilles, Ulysses and Diomedes were sent to bring him thither. He equalled his father in valor and cruelty, and at Troy was one of the warriors selected to be concealed in the wooden horse that was introduced into the devoted city. He slew Priam, sacrificed Polyxena on the tomb of Achilles, and dashed to the ground from the summit of a tower the infant Astyanax, the only son of Hector. Andromache, the widow of Hector, was assigned to Neoptolemus, and bore him several sons. Traditions differ concerning the subsequent events of his life, but most of them affirm that he settled in Epirus, and that he was murdered at Delphi, where he was buried and worshipped as a god. II. An officer of Alexander the Great, who first distinguished himself at the siege of Gaza in 332 B. C. On the division of the provinces, after the death of the conqueror, Armenia was assigned to Neoptolemus. When the Macedonian generals took up arms to contend for the empire of their master, he entered into correspondence with Antipater and Craterus, and refused to support the pretensions of Perdiccas; whereupon Eumenes, who had espoused the cause of the latter, defeated him and compelled him to flee from his province. With a small body of cavalry he repaired to the camp of Craterus, whom he persuaded to advance against Eumenes, by whose hand Neoptolemus fell in battle.

NEPAUL, an independent kingdom of Hindostan, bounded N. by the Himalaya mountains, which separate it from Thibet, E. by the British district of Darjeeling and the native state of Sikkim, S. by the British possessions, and W. by Kumaon. It is included between lat. 26° 45′ and 30° 45′ N., and long. 80° 15′ and 88° E.; length W. N. W. and E. S. E. 460 m., breadth 150 m.; pop. 1,940,000. The largest town is Catmandoo, the capital. Nepaul is intersected by several large rivers, some of which have their sources on the table-land of Thibet, beyond the Himalaya, through which they force their way by narrow chasms of the most appalling depth. The most important streams are the Gogra and Gunga. The greater part of the kingdom belongs to the Himalaya region, only a tract about 20 m. in width lying within the plain which stretches southward from the base of the mountains. There are several summits of stupendous height, among which is Mt. Everest (29,002 feet), the highest known mountain in the world. From the N. boundary, which lies within the limit of perpetual snow, the elevations gradually sink into lower and lower hills, separated by fine valleys, among which is the great valley of Nepaul, in which is situated the capital. It is about 9 m. wide, 12 m. long, and 4,000 feet above the sea. At the foot of these hills a belt of forest occurs, running E. and W. throughout the length of the country, and reaching within 10 m. of the S. frontier. It is succeeded by the Terræ (marsh) or Terreeana, a black, level, humid, malarious region, from 10 to 20 m. broad, skirting the frontier of the Bengal provinces and Oude, and covered with dense jungle. The geological formation of the hilly tract consists of limestone, hornstone, and conglomerate. Iron, lead, and copper are found; and gold and silver have also been said to exist, but it is thought that they are very scarce if not entirely wanting. The soil of the valleys is remarkably rich, and the climate and productions vary with the degrees of elevation. The bamboo, rattan, sugar cane, pineapple, and various tropical fruits alternate with the oak, pine, barley, millet, &c. Much land is cultivated in terraces, great attention being paid to its irrigation. Rice, maize, wheat, cotton, 8 kinds of pulse, and tobacco are grown. Rice is the staple food; several varieties of it are cultivated in cold and dry places, and even where snow falls. Various roots and herbs form a considerable part of the sustenance of the poorer inhabitants. The number of horned cattle is not great, but there are large flocks of sheep, some of great size with fine wool, from whose milk the Nepaulese make cheese. Horses are brought from Thibet. There are elephants and tigers, though not numerous, black bears of great size, hogs, the hog deer, hares, foxes, and jackals. The woods are inhabited by great numbers of peculiar birds, and the rivers have abundance of fish. —The inhabitants consist of a variety of races, the dominant people being the Gorkhas, a tribe of Mongol origin, Hindoos in religion, who conquered the country about the close of the 18th century. They have enlisted in large numbers in the British E. I. army, and their services, particularly at the siege of Delhi, have caused them to be regarded as valuable soldiers. They are faithful and courageous, though not very capable of endurance. (See GORKHAS.) Many Hindoos from Chitore settled in Nepaul at the time of the Mohammedan invasion, and some of them have preserved their blood pure to the present time, while others have intermarried with Chinese and Tartars. The Hindoos are found chiefly in the W.; the E. is populated by aboriginal tribes, among which are the Newars, Magars, Gurungs, Jariyas, Dhenwars, Bhootias, Mhanjees, and Bhanras. The Newars, who are the most important of these, are an industrious agricultural and commercial people, more advanced in the mechanical arts than the mountain tribes, ingenious and peaceable, excessively dirty, of middle size and great strength, with round flat faces, small eyes, broad noses, and open countenances. They are Buddhists to a certain extent, but have a priesthood of their own. Most of their arts appear to have been introduced from Thibet. The women are allowed to change their husbands as often as they please. Some coarse cotton cloth is made, and the natives work very well in iron, copper, and brass, and are good carpenters, though they never use the saw. The trade of the country is not of much importance, being injured by numerous government monopolies. A considerable quantity of timber is floated down the rivers, and finds a market principally at Calcutta. The government is strictly despotic; and the whole population are liable to military service in times of public danger, though not trained to arms. There is a standing army of about 35,000 men, armed and disciplined, in some measure, after the model of European troops. They are very brave, and have the reputation of being good soldiers.—Of the history of Nepaul little is known until the invasion of the Gorkhas (1768); it seems never to have been subject to the Moguls or any other great Asiatic conquerors. A war in which it became involved with Thibet in 1790 led to hostilities with the emperor of China, who, regarding himself as the protector of the lamas, sent an army of 70,000 men against the Nepaulese and extorted from them a nominal submission. A treaty of commerce was concluded with the British in 1792, and from 1802 to 1804 the latter had a political resident at the court of Catmandoo. In the mean time the country had been a prey to intestine feuds, during which it is remarkable that its boundaries were enlarged on all sides. In consequence of the repeated encroachments of the rajah upon the East India company's territories, the British made war in 1814, and invaded the country on the W. frontier, where their troops met with repeated losses, and their commander, Gen. Gillespie, was slain. In the following year, however, the campaign under Sir David Ochterlony was attended with very different results. The victory of Malowa, the capitulation of the famous Nepaulese commander Ameer Singh, and finally the rapid advance of the victors toward Catmandoo, obliged the rajah to make peace, and a treaty was signed on terms very favorable to the British in March, 1816. The recent history of Nepaul has been given under JUNG BAHADOOR. Throughout the mutiny of 1857 the Nepaulese cultivated the friendship of the British, and a commission has in consequence been recently appointed by the latter to mark out a new boundary which will give to Nepaul a considerable addition of territory.

NEPENTHE (Gr. νη, not, and πένθος, grief), a soothing drug known to the Egyptians, from whom, according to Homer, Helen learned the art of compounding it. According to Diodorus Siculus, the Theban women also possessed the secret of its preparation.

NEPHRITE. See JADE.

NEPOMUCEN, JOHN, or JOHN OF NEPOMUCK, the patron saint of Bohemia, born at Nepomuck in 1320, killed May 16, 1383. His true name was John Welflin. Having entered the church, he was made canon of Prague and confessor to the queen, and was offered higher dignities, which he modestly declined. King Wenceslas, suspecting his wife's fidelity, endeavored to force him to reveal her confessions, and on his refusal caused him to be drowned in the Moldau. He was canonized by Pope Benedict XIII. in 1729. He is greatly honored in Bohemia as a martyr, and invoked as a protector against slander.

NEPOS, CORNELIUS, a Roman author, probably a native of Verona or its vicinity, died in the reign of Augustus. Nearly all his works have perished. He wrote *Chronica*, an epitome of universal history; *Exemplorum Libri*, a collection of remarkable sayings and doings, like that of Valerius Maximus; *De Historicis*, and *De Viris Illustribus*. Two of the lives comprised in the last named work, those of Cato and Atticus, are extant. The well known *Excellentium Imperatorum Vitæ*, first printed at Venice in 1471, and long ascribed to Æmilius Probus, is now considered an abridgment by him of the work of C. Nepos. It has passed through numberless editions, and has been translated into most European languages.

NEPTUNE (*Neptunus*), the principal sea divinity of the Romans. The Latin poets identified him in all respects with the Poseidon of the Greeks. He was a son of Saturn and Rhea, and a brother of Jupiter, Pluto, Ceres, Vesta, and Juno. Like his brothers and sisters, he was swallowed by his father as soon as he was born, and thrown up again; or according to another account, his mother saved his life by hiding him among a flock of lambs, and offering to Saturn a young horse to which she feigned to have given birth. After Jupiter had overthrown his father, the empire of the sea fell by lot to Neptune. He is represented as being of equal dignity with his brother Jupiter, but of inferior power, though he sometimes threatened him, disputed the possession of Ægina with him, and once conspired against him. His palace was in the sea near Eubœa, and he was the especial ruler of the Mediterranean. He assisted in building the walls of Troy, and, being refused the reward promised by Laomedon, ever after bore an implacable hatred to the Trojans, and in the war against Troy sided with the Greeks, often fighting with them, causing the earth to tremble, and encouraging them with the signs of his divine favor. He had power over the clouds and storms, over ships and mariners, and over all other sea divinities; and he held the earth in his watery embrace. For a long time he disputed the possession of Attica and Trœzene with Minerva, with Sol the sovereignty of Corinth, with Juno that of Argolis, with Bacchus that of Naxos; and at one time Delphi belonged to him. He was the creator of the horse, and the teacher of horsemanship. There were many legends about him; with Jupiter he fought against Saturn and the Titans; he crushed the centaurs under a mountain in Leucosia; and he sought the hand of Thetis, but refused it through fear when Themis foretold that the son of Thetis would be greater than his father. The wife of Neptune was Amphitrite, by whom he had three children, Triton, Rhode, and Benthesicyme, beside a large number of other children by divine and mortal women. He was worshipped in Argolis, in the Corinthian isthmus, and in Ionia, and had a temple in Rome, in the Campus Martius. The sacrifices offered to him were bulls, bears, rams, and bridled horses, and horse and chariot races were held in his honor. He had many surnames in allusion to his various attributes. In works of art his emblems are the trident, a spear with three points, the horse, and the dolphin; and he is portrayed sometimes in a state of calm, sometimes in agitation, corresponding to the different aspects of the sea over which he presides.

NEPTUNE, a planet. See LEVERRIER.

NERBUDDA, a river of Hindostan, which rises about lat. 22° 40′ N., long. 81° 52′ E., nearly 2,500 feet above the level of the sea, and after a course of 600 m., generally W., falls into the gulf of Cambay in lat. 21° 40′ N., long. 73° 5′ E. During the rains it rises in some places 70 feet and in others 20 above its level in the dry season. The Nerbudda has no tributaries worthy of notice. There are extensive forests on its banks; and in the district of Malwa its channel is worn to a great depth through columnar basalt. It is navigable for boats to Daree, 250 m. from its mouth, but the upper part of its course is obstructed by numerous rapids and falls.

NEREIDS, the name of the sea centipedes of the dorsibranchiate order of annelids, of which the genus *nereis* (Cuv.) is one of the best known forms. The class and ordinal characters are given under ANNELIDA. In the true nereids the tentacles are of even number; there is a single pair of maxillæ in the proboscis; the branchiæ are small plates in which a network of blood vessels is disposed; each of the numerous feet has 2 tubercles, 2 bundles of bristles, and an under and an upper cirrus; the body is like that of a centipede, with many joints. They are active, crawling and swimming with facility; some live in crevices in rocks near the shore, in sponges, corals, deserted shells under stones, or wherever they can find a shelter; others burrow in mud or sand, occasionally making tubes or sheaths, from which they protrude the anterior part of the body, and into which they retreat quickly when alarmed; some of the tropical species are very large, and vividly phosphorescent at night. Their food consists of living and dead animal substances, such as marine worms and soft-bodied invertebrates. The species are numerous, and are found on almost all coasts.—The sea mice (*aphrodita*, Linn.) belong to the same order; the body is broad and flat, with 2 longitudinal rows of wide membranous scales covering the back and concealing the branchiæ. The common sea mouse (*A. aculeata*, Linn.) is 6 or 7 inches long and 2 broad, with the back covered with a flax-like substance in which are mixed spines and softer bristles, the latter shining with all the tints of the rainbow, and rivalling in beauty the lustre of the humming bird or the sparkling of the most brilliant gems.

NEREUS, in Greek and Roman mythology, a son of Oceanus and Terra, and the father of the Nereids. He is represented as the wise old man of the sea. His peculiar domain was the Mediterranean and Ægean. He was believed to have the power of prophesying, and of appearing to mortals in many shapes.—The Nereids, his daughters, 50 in number, were worshipped in Greek maritime towns, and on the isthmus of Corinth.

NERI, FILIPPO DE', commonly called in English ST. PHILIP NERI, a saint of the Roman Catholic church, born in Florence in 1515, died in Rome in 1595. He belonged to a noble family of Florence. At the age of 19 he went to Rome, where he devoted himself to the care of the poor, was ordained priest, and founded a confraternity for the relief of destitute strangers, pilgrims, and other homeless persons. In 1564, in concert with Baronius, who afterward became cardinal, and a number of other pious friends, he established the congregation of priests of the oratory, for mutual improvement, study, preaching, and the instruction of youth, and became its first superior. The members of the congregation were not required to take vows, their founder saying that the spirit of charity should be their only bond of union. They were approved by Gregory XIII. in 1575, and soon spread over Italy and other countries. Filippo continued to govern them until 1592, when he resigned in favor of Baronius. St. Filippo de' Neri is supposed to have been the originator of the musical oratorio. He was canonized by Gregory XV. in 1622. His literary remains consist of his letters, a few poems, and *Ricordi*, or advice to youth. (See PRIESTS OF THE ORATORY.)

NERO, a Roman emperor, born at Antium on the coast of Latium, Dec. 15, A. D. 37, died by his own hand in 68. He was the son of Cneius Domitius Ahenobarbus, by Agrippina, the sister of Caligula, and his original name was Lucius Domitius Ahenobarbus. When he was 13 years of age his mother married her uncle the emperor Claudius, who 3 years afterward gave his daughter Octavia to Nero in marriage, and formally adopted him under the name of Nero Claudius Cæsar Drusus Germanicus. Under the care of the philosopher Seneca he is said to have made some progress in learning; for though he was weak, indolent, and self-indulgent, he possessed good natural talents, and in his 16th year delivered an oration in Greek in behalf of the inhabitants of Ilium and Rhodes. In 54 the murder of Claudius by Agrippina placed him on the imperial throne, his mother causing the emperor's death to be kept secret until he could be safely proclaimed by the soldiers. The senate and the provinces at once submitted, and no attempt was made to secure the purple for Claudius's own son Britannicus, who was 3 or 4 years Nero's junior. The first 5 years of the young emperor's reign, known as the *quinquennium Neronis*, were distinguished for clemency and justice, though his private life was from the first extremely licentious. The conduct of affairs was left principally to Seneca and Burrhus, under whose influence the happiest reforms were introduced into the state, and Nero daily rose in popularity; but the jealousy of Agrippina, who found herself shut out from power, soon overthrew the ascendency of Seneca, though it did not establish her own. She threatened to disclose the circumstances of Claudius's death, and to incite the legions to support the claims of Britannicus; she abused Nero with contemptuous language, and upbraided him for his disgraceful amour with a low-born woman named Acte. Nero replied to these reproaches by causing Britannicus to be poisoned, and by plunging into still lower depths of immorality. In company with other dissolute young men he roamed through the city by night, beating and robbing passengers and breaking into houses. One of his boon companions was Otho, who was afterward for a few months emperor. Poppæa, the beautiful but profligate wife of this man, was at last the cause of Agrippina's death. Nero had become enamored of her, and sent Otho to Lusitania to get him out of the way; but Poppæa, who aspired to share the imperial throne, encountered in Agrippina an enemy who thwarted all her plans. Persuading the emperor that his mother entertained designs upon his life, she finally procured an order for her assassination (A. D. 59), and her death was communicated to the senate by Seneca, who was an accomplice in the crime. This was followed by the divorce of Octavia, who was soon afterward put to death, and the marriage of the emperor to Poppæa. In 62 Burrhus died, and Seneca wisely asked leave to retire. Two years afterward a dreadful conflagration raged in Rome for 8 days, totally destroying 3 of the 14 districts of the city, and leaving only a few half-ruined houses in 7 of the others. Dion Cassius and Suetonius relate that Nero fired it himself, and it is said that, as he watched the progress of the flames from the top of a high tower, he amused himself with playing on the flute the drama of the destruction of Troy. The truth of the story is doubtful, but it was believed at the time, and Nero sought to transfer the odium of the conflagration to the Christians, many of whom he caused to be put to death. Some were covered with the skins of wild beasts and torn to pieces by dogs, and others were smeared with combustibles and burned by night in the imperial gardens, while the emperor drove his chariot by the light of the flames. The tyrant was liberal to the sufferers by the conflagration, and upon the ruins of the old city built a much finer one on a different plan, one of its most striking features being a vast palace for himself, which was called "the golden house;" but he defrayed the expense by robbery and extortion. The discovery of a conspiracy against him served to develop his ferocity. C. Calpurnius Piso, Plautius Lateranus, the poet Lucan, and Seneca were put to death for complicity in it. The senate was induced to receive the intelligence of their fate as the news of a great victory, and the infamous Tigellinus, the emperor's principal instrument, was decreed triumphal honors. Having killed Poppæa by a kick when she was with child, Nero now proposed to marry Antonia, his sister by adoption, and on her refusal ordered her to be put to death. He then bestowed his hand upon Statilia Messalina, whose husband Vestinus he had assassinated for marrying Messalina after the emperor had cohabited with her. The jurist Longinus was exiled, and the most virtuous citizens, among whom were Thrasea Pætus and Barea Soranus, were put to death. In the midst of these executions, Nero's highest ambition seemed to be to excel in the games of the circus. He visited Greece to display his skill as a musician and charioteer, and the Olympic games were delayed two years (from 65 to 67) that he might be present at them. At the Isthmian games he ordered the death of a singer whose voice overpowered his own. He returned to Rome as a conqueror, entering the city through a breach in the wall, riding in the chariot of Augustus, with a musician by his side, and the 1,800 crowns which he had won at the games displayed as the trophies of his expedition. He had already appeared upon the stage in Rome and other cities of Italy, and chariot racing, music, and every frivolous amusement now engrossed his time. But in the meanwhile a formidable insurrection was preparing. It broke out in Gaul, under Julius Vindex, governor of Celtica, who raised an army and offered the purple to Galba, then governor of Hispania Tarraconensis. Galba accepted the flattering proposal, but the troops of Vindex were defeated before Vesontio (Besançon), and their general was killed. There is little doubt that Galba would have yielded, but in the meanwhile Nero, who had reluctantly left his extravagances in Naples to assume the consulship alone at the capital, was deserted by the prætorian guard, condemned to death by the senate, and forced to flee to the house of one of his creatures in the suburbs. Here, after spending in an agony of fear and irresolution the night and part of the next day, he committed suicide, and died in the presence of the soldiers who had come to seize him. His corpse received an honorable burial from his concubine Acte and two of his nurses.—The military events of Nero's reign were upon the whole glorious to the Roman arms. In Armenia, which had been occupied by the Parthians, a war commenced in 58, and was terminated in 60 by Domitius Corbulo, who destroyed Artaxata, the capital, and captured the city of Tigranocerta, thus rendering the Romans masters of the whole country. Tiridates, the king who had been set up there by the Parthians, subsequently renewed the struggle, and after temporary successes was compelled to submit and go in person to Rome to do homage for his kingdom. Nero, however, soon afterward condemned Corbulo to death, a sentence which the old soldier anticipated by suicide. In 61 a great rising in Britain under Boadicea was put down by Suetonius Paulinus. A revolt also broke out in Judæa, and Vespasian was sent to suppress it; but the history of this war, which terminated with the conquest of Jerusalem by Titus, belongs rather to subsequent reigns.

NERO, Claudius. See Claudius Nero.

NERO, Claudius Drusus. See Drusus.

NERO, Claudius Tiberius. See Claudius Tiberius Nero.

NERO GERMANICUS, Tiberius Claudius Drusus. See Claudius I.

NERTCHINSK, the capital of a circle of its own name in Eastern Siberia, about 550 m. E. by N. from Irkootsk; pop. of the circle about 120,000, and of the town 6,000. The military post of Nertchinsk commands the frontier of China. The circle of Nertchinsk is generally mountainous, but the town is situated on low ground, and is often subjected to inundation. Its general appearance is unattractive, and most of the houses are built of wood. It contains several churches and schools, and derives great advantages from its extensive fur trade. —The celebrated Nertchinsk government mines are situated upward of 100 m. from the town, in the Nertchinskoi mountains. More than 4,000 persons were in former years employed in the silver mines alone. The total number of the convicts sentenced to labor in the mines of the empire in 1856 was 1,574, a portion of whom are employed in working the gold mines at Nertchinsk, where their condition is said to be deplorable and attended with the greatest sufferings. The working of the lead and silver mines was stopped in 1848; the ore at Nertchinsk as well as in other parts of Siberia contained, according to official investigation, 9.7 oz. of silver and about 168 lbs. of lead to the ton. There are also mines of tin, cinnabar, and zinc in the circle of Nertchinsk, but they are not much worked on account of their remote situation and indifferent character. This circle is almost the only one of Russian Asia in which new discoveries of gold have been made since 1846, chiefly among the affluents of the river Shilka; and the produce rapidly increased from that time until 1850, but has since been decreasing. The gold extracted in 1856 amounted to 2,878 lbs. 6 oz. 6 dwt., and the silver to 1,856 lbs. 11 oz. The report of 1857 mentions no yield of gold at all, and only 7 lbs. 7 oz. 5 dwt. of silver. The yield of auriferous sands is said to be diminishing, and the old deposits are exhausted, while the spirit of mining enterprise has to some extent subsided. A small village (Nertchinskoi Zavod) has sprung up in the mining district, which contains about 800 houses for the use of the mining population. Several naphtha baths exist in the circle similar to those in Taurida.—Middendorff, of the Russian academy, on his tour of exploration in 1845, crossed the Chinese frontier and discovered that the Russian government erroneously regarded the Stanovoi mountains as their boundary toward China, the Chinese themselves having erected boundary posts in a much more southerly direction, and among the left affluents of the Amoor, and that thus a great extent of territory would accrue to Russia beside the outlet into the Pacific. Capt. Achte was subsequently employed in acting upon this discovery of Middendorff, which eventually resulted in the acquisition by Russia of the whole left bank of the Amoor.

NERVA, Marcus Cocceius, the 18th Roman emperor, born probably in Narnia, Umbria, A. D. 32, died in Rome, Jan. 27, 98. He was twice consul before his accession to the purple, in 71 with Vespasian, and in 90 with Domitian. On the assassination of Domitian, in Sept. 96, Nerva was proclaimed emperor by the people and soldiers. He discontinued Domitian's prosecutions for treason, discountenanced informers, permitted exiles to return, purchased land and distributed it among the poor plebeians, and made occasional donations of money and corn. By suppressing many of the public shows and festivals, and diminishing the expense of such as were tolerated, he economized the revenue, and increased the resources of his empire. In the second year of his reign a conspiracy was formed against him, at the head of which was a descendant of the triumvir Crassus. Its existence was however discovered in time; but Nerva having sworn, when accepting office, that no senator should suffer death under his rule, the leader was only banished to Tarentum and the inferior conspirators were pardoned.

NERVAL, GÉRARD DE. See GÉRARD DE NERVAL.

NERVII, an ancient people, who were regarded as the most savage of the tribes of Gallia Belgica. They had their capital at Bagacum (Bavai), and their territory bordered on the possessions of the Atrebates, Veromandui, and Ambiani. It was consequently included in what was afterward the diocese of Cambrai, Cambrai or Camaracum being one of their towns. They claimed a Germanic origin, but there is no evidence to determine whether they were Germans or not. Their country was defended against cavalry by an almost impenetrable quickset hedge, which Cæsar says a man could not see through. They joined the Belgian confederacy against the Romans, and under Boduognatus fought a great battle with Cæsar on the banks of the Sabis or Sambre (57 B. C.), in which their name and nation were nearly destroyed. Their chief men were reduced from 600 to 3, and their army from 60,000 to 500. Nevertheless, in 54 B. C. they joined with the Eburones in an attack on the camp of Q. Cicero, who had his winter quarters in their territory, and in the following year were again defeated by the Romans and forced to come to terms.

NERVOUS SYSTEM. The most important and remarkable characteristic that distinguishes the physical organization of animals from that of plants, is the existence in the former of a peculiar tissue or substance called nerve. The special endowment of this substance is what is termed sensibility, or that faculty by which an animal is capable of receiving impressions from external objects, and by which consequently it is brought into relation with the surrounding world. In most animals this tissue is so disposed as to form a distinct and complete apparatus called the nervous system. The development of this system is always in direct relation to the complexity of the physical organization and the degree of physical endowment. In the lowest forms of animal creation the existence of nervous matter is as yet undemonstrated, but it is presumed by some physiologists that it exists in the form of molecular matter diffused through the body of the animal. The tissue out of which the nervous system is constructed presents two varieties, described by anatomists as the white or fibrous matter, and the gray, cineritious, or vesicular matter. The white matter is developed in the form of fibres or filaments, bound together in fasciculi or bundles, which constitute what are called nerves; their function is internuncial or conducting. The gray matter is accumulated in masses called centres or ganglia; their office is dynamic, originating the so called nervous force. (For a more particular description of the microscopical anatomy and chemical analysis of nerve tissue, see BRAIN.)—Examining the nervous system in its comparative development in the animal creation, we find four principal types exhibited in the four great classes radiata, mollusca, articulata, and vertebrata. We will briefly examine these in succession. 1. *Nervous System of Radiata.* In this class we find the simplest form of nervous system, and one which corresponds with the simplicity of the physical organization, the animal being formed by a series of similar parts. Thus in the *asterias* or 5-rayed star fish we have a chain of 5 ganglia surrounding the central mass, or body which contains the mouth and digestive cavity. These ganglia are united to each other by nervous arcs called commissures, and each sends into the ray or limb opposite to which it is placed nervous prolongations. 2. *Nervous System of Mollusca.* In these animals we have several separate and distinct organs, such as a digestive apparatus, a liver, gills, ovaries and testicles, the male and female function coexisting in the same animal; we have beside a muscular mantle and a foot or organ of locomotion. The necessities of this physical organization are met by a corresponding arrangement of the nervous system. Thus in *aplysia* there is an anterior or cerebral ganglion resulting from the junction of two above the œsophagus; this ganglion represents the brain, and is doubtless connected with whatever sensitive or volitional endowment the animal possesses. From this small nerves pass to form the pharyngeal ganglion, which supplies innervation to the digestive apparatus; from this two nerves pass backward to form the pedal ganglion, which also gives nerves to supply the mantle; and in the posterior part of the body there is an additional ganglion, called the branchial, the nerves of which are distributed to the gills. 3. *Nervous System of Articulata.* In this class we observe that the body is divided into a certain number of similar segments, of which the anterior, called the head, presents the greatest development. The nervous system in this class corresponds to their anatomical structure. Thus in the common centipede or *scolopendra*, the nervous system consists in two nervous cords running along the ventral surface of the animal, and presenting opposite to each articulation ganglionic enlargements; these ganglia send off lateral prolongations, which unite with each other on the upper surface of the body, forming a series of circular commissures. At the head there is a ganglion at the point of junction of the lateral prolongations from the infra-œsophageal ganglia, called the supra-œsophageal ganglion, and from this ring or collar arise the optic nerves and the other nerves that are distributed about the head. In insects we find a somewhat more complicated arrangement of the same type of nervous system, and one which presents very important analogies to the nervous system of the vertebrata. It consists in a ganglionic nervous cord, but the ganglia are arranged so as to correspond with the anatomical division of the animal into three distinct cavities, the head, chest, and abdomen. In the head we have the ganglia presiding over the functions of special sense, prehension, and mastication; in the chest those that control respiration and the locomotive organs, the legs and wings; and in the abdomen those that are connected with the digestive and reproductive functions. 4. *Nervous System of Vertebrata.* The nervous system, as we find it developed in the mammalia, the last and highest class of the vertebrata, consists of an axis of nerve matter, called the cerebro-spinal axis, which is enclosed in the cavities of the cranium and spinal canal. This axis is constituted of ganglia and of longitudinal and transverse commissures, and gives off nerves which are distributed to the organs of sense, sensation, and motion. This cerebro-spinal axis, however, with its centres, commissures, and nerves, forms but one portion of the nervous system in the vertebrata, that which presides over the purely animal functions of locomotion, respiration, sensation, and intelligence. A separate and distinct system, called the ganglionic or sympathetic, controls the functions of organic or vegetative life; its centres are located in the visceral cavities of the body; they are connected with each other by longitudinal and transverse commissures, and send filaments to all the viscera. The cerebro-spinal axis, as it is developed in man, may be briefly described as follows. The principal ganglion is placed at the superior extremity of the axis, and is called the brain or encephalon. This is enclosed in the cavity of the cranium, and is enveloped by three membranes, the dura mater, the arachnoid, and pia mater. The encephalon is constituted of a series of ganglia connected with each other, and designated, counting from before backward, as: 1, the olfactory ganglia; 2, the cerebrum or hemispheres; 3, the corpora striata; 4, the optic thalami; 5, the tubercula quadrigemina; 6, the cerebellum; 7, the ganglion of the tuber annulare; and 8, the ganglion of the medulla oblongata. The cerebrum and the cerebellum present a convoluted surface; the others are smooth and irregularly rounded. The superior aspect of the brain presents a deep longitudinal fissure, which divides the cerebrum into two lateral halves, called the cerebral hemispheres; these hemispheres, however, are united at their base by a long commissure, designated as the corpus callosum. Upon its inferior surface each hemisphere is seen to be divided into an anterior, middle, and posterior lobe. The remainder of the axis, called the spinal cord, is a cylinder of nerve matter, extending through the entire length of the vertebral canal, where it is enveloped by prolongation of the membranes of the brain. Upon the anterior and posterior aspects of this cord are two longitudinal fissures, which indicate the two lateral halves of which this organ is composed. From the brain and spinal cord there arise 44 pairs of nerves, perfectly symmetrical in their courses and distribution. These nerves are distinguished as cranial and spinal. The cranial nerves, of which there are 12 pairs, are distributed mainly to the organs of sense, and those of voice and speech; they emerge from the skull by the several openings at its base. The spinal nerves, of which there are 32 pairs, arise from the cord by two roots, one from the anterior, and the other from the posterior columns of the cord. They escape from the canal through the intervertebral openings, and are distributed principally to the voluntary muscles and the integuments of the neck, body, and extremities. The cerebro-spinal axis, or the nervous system of animal life, as it is called in contradistinction to the sympathetic system, or that of organic life, presents certain peculiarities in the several classes of vertebrata which deserve to be briefly mentioned. As we descend in the series of vertebrate animals, we are struck with the difference in the relative size and development of the brain and spinal marrow. The annexed table will show the proportion which the one bears to the other in weight in the four classes:

Class.	Species.	Proportion of		
		brain	to	spinal marrow.
Pisces..............	Lamprey...........	100	:	750
Reptilia............	Triton..............	100	:	180
Aves................	Pigeon..............	100	:	80
Mammalia..........	Mouse...............	100	:	22

The following table shows the relative proportions of the body and brain in the same classes:

Class.	Species.	Proportion of		
		brain	to	body.
Pisces..............	Lamprey............	100	:	142.500
Reptilia............	Turtle.	100	:	454.500
Aves................	Pigeon..............	100	:	9.100
Mammalia..........	Mouse...............	100	:	8.500

This diminution in the size of the brain in the lower vertebrata is observed chiefly in the cerebral hemispheres, the centres of instinct and intelligence. A few words will describe some of the more important anatomical differences in the cerebro-spinal axes of the three lower classes of vertebrata. The brain of birds presents a perfectly smooth surface, and is composed of 6 masses, viz., beginning anteriorly, the two lateral hemispheres, the optic tubercles, the cerebellum, and the medulla oblongata. The cerebellum is compressed laterally and convoluted transversely. The brain of birds has in common with reptiles and fishes certain peculiarities never observed in the brain of mammalia. They are: 1, the absence of the corpus callosum or broad commissure of the cerebral hemispheres; 2, the separation of the optic tubercles with the hemispheres; and 3, the existence of two ventricles in the optic tubercles. In reptiles, as in birds, the brain is without convolutions. The optic tubercles, however, instead of being smaller, are larger than the cerebral hemispheres, and placed as usual behind them. The cerebellum is behind the optic tubercles, and is generally small. The olfactory nerves are apparently continuous with the anterior or cerebral ganglia. The brain of fishes is composed of lobes placed one behind the other so as to form a sort of knotted cord. The optic tubercles, called also *tubercula quadrigemina*, and the cerebellum, are placed behind the cerebral ganglia, and are larger in proportion to the latter than in reptiles. The spinal cord differs essentially in the different classes of vertebrata only in the number of pairs of nerves which arise from it, this number being always proportioned to that of the vertebræ.—*Functions of the several parts of the Nervous System.* The first question that meets us in this inquiry is: What are the vital endowments of nerves and nervous centres? When we expose and irritate a nerve by chemical, mechanical, or electrical stimulus, we observe no visible change in the nerve itself, but we produce indications of pain and contraction of the muscles to which the nerve is distributed. We infer therefore from the effects of the irritation that it has produced some change in the nerve, or excited in it some vital endowment. This change has been compared to that wrought in a piece of malleable iron by the galvanic current; and the analogy has suggested the term polarity or polar force, as applicable to the condition produced in nerves by the application of stimuli. This property of nerves, by which they respond to external irritation, producing pain or muscular contraction, is called irritability; and one of its most remarkable characteristics is the instantaneousness with which the effect follows the irritation. This irritability or nervous force, as it is also called, can be excited at the centres and extremities as well as in the course of the nerves. The effects of irritation vary considerably, however, in different parts of the nervous system; thus there are certain ganglia, as for example the cerebral hemispheres, which may be irritated without exciting pain or muscular contraction. Considerable portions of these hemispheres are sometimes removed by accident or operation without producing any appreciable effect; the reason of this is, that these ganglia have no direct connection with the muscular system, and are not sensitive. There are other ganglia and nerves, moreover, the irritation of which produces effects that are entirely peculiar to themselves. Thus, irritation of the optic tubercles or nerves causes the sensation of light, irritation of the auditory nerve gives rise to the sensation of sound, and irritation of the olfactory and gustatory nerves to those of smell and taste. This difference in the effects produced by the irritation of different nerves is the basis of a division of the nerves into: 1, motor nerves, or those in which irritation produces muscular contraction; 2, sensitive nerves, or nerves of common sensation, in which irritation is followed by an agreeable or painful feeling, according to the nature or degree of the stimulation; and 3, nerves of special sense, in which irritation excites the peculiar sensations of light, sound, taste, &c. Many sensitive nerves arise from nervous centres in such close proximity to motor nerves, that a stimulus applied to the former will react upon the latter, and produce not only a direct sensation, but what is technically called a reflex action. This property of reflection was supposed by Marshall Hall to reside in special nerves which possessed both an incident and a reflected fibre, or, as they are called, an afferent sensitive nerve leading to the centre, and an efferent motor nerve coming from the centre; these nerves he styled excito-motory. Probably the majority of all the nerves in the body are compound in their constitution; *i. e.*, they are formed of sensitive and motor filaments combined in the same sheath, or fibrous covering, called the neurolemma. There is no appreciable difference in the structure of sensitive and motor nerves. The difference in their endowments can only be ascribed, in the present state of our knowledge, to the different nature of their central or peripheral connections. It is a remarkable fact that whatever part of a sensitive nerve be irritated, whether it be the centre, the middle, or the extremity, the same sensation will be produced. There are many familiar illustrations of this fact. For years after the amputation of limbs, patients will experience the sensation of fingers and toes; and when the trunk of a nerve is irritated, they will complain of pains or tingling in the extremities. The same law applies to nerves of special sense. Ordinarily their peculiar irritability is excited by stimuli applied to the periphery or ultimate distribution of the fibres; but occasionally, in consequence of disease, we have these special sensations caused by stimulation applied at the centre or origin of the nerves. Thus, the circulation in the brain of a diseased blood, or the existence of tumors or other local disease in the neighborhood of the centres of the nerves of special sense, gives rise to optical illusions, singular noises, disagreeable odors, &c. The stimuli that excite the nervous force or irritability are of two kinds, physical and mental. Physical stimuli embrace all external excitants of whatever nature—light, heat, sound, odor, and every variety of chemical, mechanical, and galvanic irritant. Mental stimuli result from the exercise of the will and thought. In all voluntary movements the mind is the direct stimulus of the motor nerve; and in certain deranged states of the nervous system, as in hysteria, the mind also seems to affect directly the nerves of sensation so as to excite pain. Motor nerves are never directly excited by physical stimuli. The latter act always on motor nerves through the medium of sensitive nerves, and, as before stated, the actions so produced are termed reflex actions. The most remarkable of the physical stimuli, and the one most analogous in its effects to the stimulus of the will, is galvanism. The effect of this stimulus is muscular contraction, and there are certain peculiarities in its mode of action worthy of mention. 1. If the current is made to cross a nerve at right angles to it, no effect is produced; but if it be made to pass along the fibre, for the smallest fraction of an inch, it will excite more or less violent contraction of the muscles to which the nerve is distributed. 2. These contractions occur at the moment of making and breaking the current, and not while it is passing. 3. When the current is made to pass from the centre toward the periphery, it is called the direct current; when from the periphery toward the centre, the inverse current; and it is observed that contractions occur at the moment of making the direct current, and at that of breaking the reverse. 4. Continuance of the direct current exhausts the power of the nerve, but the reversal of the current will restore it; hence the value of the interrupted current, obtained from the electro-magnetic machines, as a remedial agent.—*Nature of Nervous Force.* We can judge of the nature of the nervous force only by its effects. The muscular contraction caused by the irritation of a nerve is due to the development of a peculiar vital force in the nerve structure, which is unlike any of the known physical forces. It bears certain analogies to electricity, and by some authors has been supposed to be identical with it. The reasons for this supposition are: 1, the identity of their effects on muscular fibre; 2, the rapidity of their action without producing any appreciable effect on the parts between the point of irritation and the point affected; 3, the extreme sensibility of nerve to the electric current; and 4, the phenomena of electrical fishes. None of these reasons are sufficient to establish the identity of the nervous and electrical forces, while the experiments of Longet, Matteucci, Prévost, Dumas, and others, showing that the most delicate tests can detect no galvanic current in the nerves, and that they are inferior to some other substances as conductors, prove conclusively that they are essentially distinct and different forces. With regard to the indisputable electrical phenomena that are observed in the torpedo and gymnotus, it is well ascertained that they depend on the existence in these animals of a special organ which generates electricity. The function of nerves, as has been remarked, is internuncial. They possess only limited capacity for the development of nervous force. Their office seems to be to conduct sensations from the periphery to the centre, and impulses from the centre to the periphery. Their connection with a centre is essential for the exercise of mental stimulus or the appreciation of external impressions. The determination of the sensitive or motor character of a nerve is effected by direct experiment on living animals, and by the effects of disease or injury of the nerves. The function of the roots of the spinal nerves, which supply the larger part of the body, was discovered in 1811 by Sir Charles Bell. He experimented on young rabbits by removing the posterior wall of the spinal column. "On laying bare," he says, "the roots of the spinal nerves, I found that I could cut across the posterior fasciculus of nerves, which took its origin from the posterior portion of the spinal marrow, without convulsing the muscles of the back; but that on touching the anterior fasciculus with the point of the knife, the muscles of the back were immediately convulsed." These experiments have been repeated by numerous observers, and the conclusion is established that the anterior root of each spinal nerve is motor and the posterior sensitive. (For a description of the functions of the encephalic nervous centres and the cranial nerves, see Brain.)—*Functions of the Spinal Cord.* The spinal cord consists of two anterior and two posterior columns made up of longitudinal nerve fibres. Each pair of columns encloses a crescentic mass of gray vesicular nerve matter. Some of the fibres originate from the gray matter within the cord, while others extend through the entire length of the cord and are connected with the brain. The discovery of the separate function of the roots of the spinal nerves was the first step in unravelling the important offices of the spinal cord. Experiments on living animals have established the following points in its physiology: 1. That the anterior and posterior columns of the cord correspond in their function to the anterior and posterior roots of the spinal nerves; for when the anterior column is divided, the power of voluntary motion is lost in the parts below the point of division, but sensation remains; and when the posterior column is divided, the anterior remaining intact, sensation is lost below the point of division, but voluntary motion remains perfect. 2. When the anterior and posterior columns are both divided, it is found that irritation of the portion of the anterior column attached to the brain produces no effect, while irritation of the lower segment causes convulsive action, showing that in the anterior column the nervous force travels from within outward and not from without inward. When, on the other hand, the portion of the posterior column attached to the brain is irritated, pain is produced, while irritation of the portion below the division causes no pain, showing that in the posterior column the nervous force travels from without inward and not from within outward. 3. The motor nerves derived from the right side of the body enter the right anterior column, and pass up the cord on the same side until they reach the medulla oblongata, where they cross over to the left side; the same course is followed by the motor nerves of the opposite side, which pass up the left anterior column till they reach the medulla, when they cross to the right side. This crossing of the motor nerves in the anterior columns of the medulla is termed decussation. The consequence of this arrangement is, that when any injury is inflicted on the right half of the anterior column below the medulla, the paralysis is on the same side; but when the injury is above the point at which decussation commences, the paralysis will be on the opposite side. 4. Recent experiments by Dr. Brown-Séquard show that there is a crossed action in the sensitive as well as in the motor fibres of the cord. The decussation of the sensitive fibres, however, exists through the entire length of the posterior columns, and not in the medulla alone, as in the anterior columns. The effect of this is shown where one half of the posterior column of the spinal cord of a dog is divided; sensation remains on the corresponding side of the body, but is lost on the opposite side.—*Reflex Action of the Spinal Cord.* Thus far the spinal cord has been considered as a bundle of sensitive and motor nerves connecting the brain with the muscles and periphery of the body; but we find that the central portion of the cord contains a considerable amount of gray matter, and that it possesses in consequence the capacity of a nervous centre. When a frog has been decapitated, sensation and volition are of course destroyed, the communication between the body and the centres in which those powers reside being cut off; but it will be found, nevertheless, that irritation of either lower or upper extremity will be followed by contraction on the corresponding side; and when the irritation is excessive, contractions will occur in all the limbs. These phenomena, which are due to the action of the cord as a nervous centre, are not unfrequently observed as a consequence of disease or injury of the spinal cord. Whenever communication is cut off between any portion of the cord and the brain by disease, such as softening, or by fracture of the spine, sensation and the power of motion are lost in the parts below the point of disease or injury; but involuntary and uncontrollable contractions occur in response to any irritation applied to the surface, such as tickling of the soles of the feet, a draft of air, or the application of the galvanic current. For the production of these reflex phenomena it is necessary: 1, that the cord be in a state of integrity; and 2, that the continuity of the spinal nerves be unbroken. If the cord be broken up in the frog by the passage of a needle through the canal, irritation of the extremities will produce no effect; and if the sciatic nerve, for example, be divided, the cord remaining perfect, no contraction can be produced on the side of the division. It is inferred then from direct experiments and from the evidence furnished by disease that the spinal cord is a nervous centre, which supplies innervation to the muscular and cutaneous systems through the medium of sensitive and motor filaments; the sensitive filaments conveying impressions from the surface to the centre, and the motor filaments transmitting impulses from the centre to the surface.—*Sympathetic or Ganglionic System.* This system, which is sometimes called the nervous system of organic life, consists in a double chain of nervous ganglia occupying the visceral cavities of the body, and extending along the front and sides of the vertebral column from its anterior to its posterior extremity. There are 4 symmetrical pairs of ganglia in the head, 3 pairs in the neck, 10 pairs in the chest, an irregular aggregation of ganglia in the abdomen called the semilunar ganglion, and 5 pairs in the pelvis. These ganglia are all connected with each other by transverse and longitudinal commissural fibres, and they send off some filaments to join nerves from the cerebro-spinal system, and others to be distributed to all the viscera which are concerned in the maintenance of organic or purely vegetative life. The state of knowledge concerning the special properties and functions of the sympathetic system of nerves is less advanced than that which relates to the cerebro-spinal system. The reasons for this imperfect knowledge are, the difficulties of experimenting on this system from the peculiarities of its situation, and the very complex connections of the sympathetic and cerebro-spinal systems.—For further information on this subject, reference may be made to the following works: Longet, *Anatomie et physiologie du système nerveux* (1842); Mayo "On the Nervous System" (1842); Carpenter's "Principles of Human Physiology" (1846; 5th ed., 1855); "Cyclopædia of Anatomy and Physiology;" Todd and Bowman, "Physiological Anatomy and Physiology of Man" (1850); Dalton's "Treatise on Human Physiology" (New York, 1859).—NERVOUS DISEASES are properly divided into the functional and structural diseases of the nervous system. The functional diseases are those in which there is no morbid change or lesion in the nerve structures to account for the symptoms; they manifest themselves by irregular, depressed, or exalted conditions of the processes and peculiar functions of the nervous system, viz., sense, sensation, and motion. They may be enumerated as follows: 1. The numerous varieties of neuralgia which are independent of disease of the nerves or their centres. (See NEURALGIA.) 2. The various forms of insanity, as delirium, monomania, dementia, and general paralysis, where no morbid change occurs in the brain to account for the symptoms. 3. The protean nervous phenomena, neuralgia, paralysis of sensation and motion, convulsions, and the various exhibitions of mental and moral perversity, constituting the disease known as hysteria. 4. Delirium tremens, that derangement of the nervous functions, manifested by optical illusions, hallucinations, mania, and muscular trembling, which arises from exhaustion of the nervous power produced by prolonged stimulation by alcohol. 5. Chorea or St. Vitus's dance, an affection occurring generally in young girls between the period of dentition and puberty, and consisting in irregular contractions of the voluntary muscles. This disease has been graphically termed "insanity of the muscles." 6. The convulsions and paralyses that occur in infancy and childhood from the irritation of teething or from gastric and intestinal derangements. 7. Tetanus or locked-jaw, a rigid spasm of the voluntary muscles arising from an exalted state of the reflex function of the spinal cord, sometimes spontaneous, but more often the result of lacerated wounds. Hydrophobia may be included under this head, inasmuch as no traces of organic change are discoverable in the brain or spinal cord to account for its phenomena. 8. The rare and curious derangements known as catalepsy and ecstasy. (See Catalepsy.)—Structural diseases of the nervous system, or those in which the nervous symptoms arise from some morbid change or lesion in the nerve structures, may be divided into: 1, diseases of the brain and spinal cord and their coverings or membranes; and 2, diseases of the nerves. The brain and spinal cord are subject to diseases affecting their membranes, their substance, and their blood vessels. The diseases of the membranes are principally inflammatory. The dura mater is not often inflamed except as a consequence of tertiary syphilis, and of injury, such as severe contusion or fracture of the skull. The arachnoid and pia mater are not unfrequently the seat of inflammation. This inflammation is termed arachnitis, meningitis of the brain or spinal cord, or in common language inflammation of the brain or brain fever. It occurs sometimes spontaneously, when it is termed primary; and sometimes as the result of previous or coexisting disease, such as typhus and typhoid fever and Bright's disease of the kidney, when it is called secondary. The inflammation of the membranes of the brain common among scrofulous children, called acute hydrocephalus or water on the brain, is secondary to the deposit in the pia mater of tubercles. The substance of the brain or spinal cord is sometimes, though rarely, the seat of inflammation that terminates in abscess. The substance of the brain and spinal cord occasionally undergoes changes in its consistence. Very rarely it becomes hardened, probably in consequence of chronic inflammation; frequently it becomes softened, a change technically called *ramollissement* or softening. Pathologists distinguish two kinds of softening, the red and the white; the red is regarded as the consequence of inflammation, and the white as the result of a defective nutrition arising either from an insufficient supply or a poor quality of the blood, or from disease of the vessels. The brain is also occasionally the seat of tumors; these are sometimes fibrous and grow from the membranes, sometimes they are made up of watery cysts which contain entozoa, and sometimes they are constituted of deposits of tubercular or cancerous matter. The blood vessels of the brain are also subject to diseased conditions. Sometimes the blood becomes stagnant in them and overloads them, causing what is called congestion of the brain; when this is sufficient to produce loss of consciousness, sensation, and motion, it constitutes simple apoplexy. Sometimes the blood vessels are weakened through a fatty deposit in their walls, so that under the influence of unusual pressure they rupture and give exit to blood, which escapes of course into the substance of the brain; this constitutes what is termed cerebral hæmorrhage or apoplexy with extravasation. The consequences that follow hæmorrhage into the substance of the brain or spinal cord vary according to the location and extent of the hæmorrhage. It may prove instantaneously fatal, where the clot ruptures or presses upon the centres of the respiratory nerves, or it may cause paralysis of sense, sensation, and motion, more or less completely, through disintegration of the structure or pressure upon the centres that preside over these functions. The term hemiplegia is used to indicate the loss of sensation and motion in one lateral half of the body, and the term paraplegia to indicate the same paralysis in the lower half of the body.—Diseases of the nerves themselves are not numerous. (See Neuralgia.) Epilepsy, which is sometimes a purely functional disease of the nervous system, and sometimes organic in its origin, is described under its own head.

NESHOBA, or Nashoba, an E. co. of Miss., intersected by Pearl river and drained by its branches; area, 600 sq. m.; pop. in 1850, 4,728, of whom 1,335 were slaves. Much of the land is uncultivated. The productions in 1850 were 153,235 bushels of Indian corn, 55,696 of sweet potatoes, and 1,422 bales of cotton. There were 5 flour mills, 3 saw mills, 3 tanneries, 6 churches, and 109 pupils attending public schools. Capital, Philadelphia.

NESSELRODE, Karl Robert von, count, a Russian diplomatist, born on board a Russian frigate in the port of Lisbon, Dec. 14, 1780, and baptized in the Protestant faith on board an English ship. He is descended from a noble German family, long settled in the provinces of the Lower Rhine, who were made at the beginning of the 18th century counts of the empire. A younger branch became also magnates of Hungary, and removed to Russia under the reign of the empress Anne. The grandfather of the present count was employed in the Russian diplomatic service, and his father, Count Max (born 1724, died 1810), negotiated the marriage of Paul with the niece of Frederic the Great, and enjoyed the confidence of Catharine II., who employed him in many diplomatic missions. He married at an advanced age Mlle. Gontard of Frankfort-on-the-Main, who followed her husband in his embassy to Portugal, and on her journey thither gave birth to the present count, who received an excellent education, began his career in the military service, but early became attaché to the various embassies of his father. Subsequently he served in that capacity under M. Markoff in Paris; on the rupture between Russia and France after the execution of the duke d'Enghien, he was transferred to the legation at the Hague under Prince Dolgoruki; and on that ambassador's departure, he remained there as chargé d'affaires (1805–'6) until the accession of Louis Bonaparte led to his withdrawal. He rejoined the embassy in Paris with the rank of councillor of legation in 1807, and succeeded in neutralizing the influence of his chief, Count Tolstoi, whose excessive hatred of the French made him unpopular at the court of Napoleon. Nesselrode, who had the manners of a man of the world and great tact as a diplomatist, gained the favor of the emperor Alexander, particularly by the brilliant style of his diplomatic compositions (which however were drawn up by his secretary, the son of Madame de Krüdener), and received an appointment in the ministry of foreign affairs in St. Petersburg. Although his family had been naturalized in Russia for several generations, they were unconnected with any of the high Russian families. Count Nesselrode married, however, the daughter of the finance minister, the future Count Gurieff; she was neither young nor attractive, but had been maid of honor to the empress dowager, and was moreover understood to possess considerable financial ability. At the height of her husband's career, the countess was in partnership with one of the first commercial firms of St. Petersburg, called the "Dutch house" or *maison Hollandaise*, which, sheltered by the illustrious partner, derived large profits from smuggling. As councillor of the cabinet he was frequently brought into personal contact with the emperor, who learned to appreciate his knowledge of international law and of European affairs. At the same time he knew how to disguise his superiority under an appearance of modesty, and to make the ideas which originated from his own mind appear to proceed from the emperor. The favorable impression which he thus produced, and the influence of the empress dowager and of his wife, led to his being intrusted with the ministry of foreign affairs *en second* after the rupture with Napoleon in 1812, although he was then only 32 years old. At first invested only with the title of secretary of state, he actually began from that time to control the relations of Russia with foreign countries. His immediate chief, Count Razumoffski, together with Kutusoff, Wolkonski, and Balaschoff, were opposed to any coalition with England and Prussia after the campaign of 1812, but wished to stop after having overrun Poland. But Nesselrode, with all the Germans and the foreigners who surrounded Alexander, took the opposite view. The coalition was formed in Kalish in 1813, and Nesselrode's influence became all-powerful. The negotiations and treaties with England, Sweden, Prussia, and Austria, which determined the result of the conflict with France, were almost all concluded under his influence. In the night of March 31, 1814, he signed the capitulation of Paris, which put an end to the wars of the first French empire; and 42 years afterward he retired from public service after the signing of the treaty of peace in Paris, March 30, 1856, which terminated the war with Napoleon III. and his allies. At the congress of Vienna, Nesselrode, Metternich, and Talleyrand were the leading spirits; and Nesselrode was the first to assume for Russia that attitude of superiority which, combined with a tone of courteous and bland moderation in communicating with other nations, has since given to Russian state craft a distinguished position in the diplomatic world. Sympathizing most with Austria, on account of her absolutist tendencies, he endeavored at the same time to maintain intimate relations with Prussia, and also showed great moderation toward France, effectually opposing at the congress of Aix la Chapelle Great Britain's desire of prolonging the occupation of France by foreign garrisons, and exerting himself to obtain a reduction of the enormous fines imposed upon her after the battle of Waterloo. Louis XVIII. and his minister Richelieu showed their gratitude to Nesselrode and his colleague Pozzo di Borgo, and immense amounts of money passed into the hands of both. The great wealth secured by him on that and other occasions, makes him now one of the richest men of Europe. He is one of the most extensive sheep graziers in Russia, his flocks amounting to upward of 150,000, and his personal property is said to be almost fabulous. Though respected on account of his great ability, the prosaic tenor of his mind was not congenial to the poetical and mystical disposition of Alexander, who regarded the holy alliance as a bond of religion, while Nesselrode looked upon it merely as a political power. While preserving the first place in the foreign ministry, he was to some extent supplanted for some time in the emperor's confidence by Count Capo d'Istria, who was appointed as his colleague, and who would probably have undermined his influence more permanently but for the outbreak of the Greek revolution, which led to his withdrawal and left Nesselrode sole master of the foreign office. The revolutionary movements which at the same period agitated Italy, Spain, and Portugal, caused Nesselrode and Metternich to adopt the most stringent policy, which had reached its climax of oppression at the time of the death of the emperor Alexander I. (Dec. 1, 1825). Nesselrode continued to enjoy the confidence of the new czar Nicholas, whose energy and commanding individuality, however, made Nesselrode's position less influential than it had been under his predecessor. Nesselrode's policy having always been marked by a tone of moderation and an excessive caution, the hostile attitude assumed toward Turkey soon after the accession of Nicholas was attributed rather to the emperor than to his minister; while the skill which the latter manifested in the whole course of negotiations, from those which preceded the battle of Navarino and the occupation of the Morea to the peace of Adrianople, contributed to strengthen the political influence of Russia. In 1844 he was promoted to the rank of chancellor of the empire. He esteems so highly his title of count of the sacred empire that he repeatedly refused the title of prince offered to him by three successive czars; but his emoluments from his various offices were enormous. From that time Nesselrode's influence was constantly increasing. Pozzo di Borgo and his other rivals of the old school of diplomatists gradually disappeared from the public stage, and their successors, the Brunnows, Meyendorffs, Kisseleffs, Gortchakoffs, &c., served their apprenticeship in his chancellorate. Under him originated principally the fashion in Russian diplomacy of writing for the use of the czar brilliant and elaborate documents, and to this capacity of *rédiger les rapports*, as it is called, Matuschewitch, Brunnow, Meyendorff, and other diplomatists are chiefly indebted for their success. Nesselrode's administration, distinguished for its unity of spirit and perfect mechanism, was only weakened by his inflexible adherence to the traditional policy of the holy alliance, but tempered by his desire of maintaining friendly relations with France and the other European powers. This peaceful disposition seems to have clashed with the impetuous and uncompromising character of Nicholas, particularly during the complications which led to the Crimean war; and although Nesselrode continued to conduct the foreign affairs during the lifetime of Nicholas and while the war was in progress, he was relieved from his duties July 30, 1856, 17 months after the emperor's death, and 4 months after the signing of the treaty of peace at Paris, since which time he has lived in retirement. Throughout his official career, Nesselrode was noted for kindness toward his subordinates, and for obtaining for them large pecuniary and other advantages. Conspicuous among his personal habits is his fondness for cookery and his skill in inventing new and famous dishes, as for instance the pudding *à la Nesselrode*, his daily consultations with his cooks having actually during his tenure of office preceded those with his employees. His wife died in Kissingen about 1846. His only son is employed in the foreign ministry of Russia, and is married to Countess Zakrewsky, whose intimacy with Alexandre Dumas, jr., gave rise to considerable comment. One of his daughters is married to Baron Seebach, the Saxon minister; another to Count Chreptowitch, for a time minister in Naples, Brussels, and England, but now retired from service; and his third daughter is unmarried.

NESTOR, a legendary Grecian hero, son of Neleus and Chloris, of Pylos. Previous to going to Troy he had taken part in wars with the Arcadians and Eleans, and in the conflict of the Lapithæ with the Centaurs; and he is also enumerated among the Calydonian hunters and the Argonauts. He went to Troy with 60 ships, and there figured as soldier, councillor, and orator, being appealed to in all dissensions among the Grecian commanders. In the famous quarrel between Agamemnon and Achilles, he effected their reconciliation. He returned home in safety after the fall of Troy, and is said to have governed wisely three generations of men.

NESTOR, the earliest Russian chronicler, born about 1056, died about 1116. In the 29th year of his age he entered the Petcherskoi convent of Kiev, where he wrote his annals of Russia, commencing with the first appearance of the Varangians in that country, about the middle of the 9th century, and bringing the history of his nation down to his own times, various events of which he described from personal observation. He wrote in the old Slavic church dialect, and both as regards the language and the contents the original work has been considerably altered by the modifications and interpolations of various continuators, so that the real merits of Nestor can hardly be ascertained. The best edition of the work is that of Pogodin (St. Petersburg, 1841). The principal translation and critical illustration of the text are by Schlözer, *Nestors Russische Annalen*, &c. (5 vols., Göttingen, 1802–'9).

NESTORIANS, a sect of early Christians who derived their name and existence from Nestorius, bishop of Constantinople in the 5th century. He was a native of Syria, a disciple of Theodorus of Mopsuestia, and, before he became bishop, a presbyter of Antioch. He was distinguished for his zeal against the prevailing heresies of his time, particularly those of the Apollinarists, who taught that Christ had not a human soul, his divine nature supplying its place, and that consequently the two natures were mixed. In his opposition to this doctrine Nestorius went to the other extreme, and maintained that there was a great distinction between Christ as the Son of God and Christ as the son of man; that the actions and sensations of the one person were to be carefully discriminated from those of the other; and that the Virgin Mary could not be called *θεοτοκος*, "mother of God," but only *χριστοτοκος*, "mother of Christ," because it was only the human nature of Jesus Christ that was born of her, since God could neither be born nor die. His opinions were vigorously combated by St. Cyril, bishop of Alexandria, who by advice of Pope Celestine called a council at Alexandria in 430 to determine the controversy. By this assembly Nestorius was judged guilty of blasphemy and anathematized. He retorted by charging Cyril with confounding the two natures of Christ, and anathematized him in turn. The emperor Theodosius II. thereupon called a general council at Ephesus in 431, at which Cyril presided, and Nestorius, refusing to appear when summoned, was again condemned, deprived of his bishopric, and sent into banishment, where he passed the rest of his life. The council declared the true sense of the church to be that Christ consists of one divine person, yet of two natures, not mixed and confounded, although intimately united, forming what is known to theologians as the hypostatical union. But this definition did not end the controversy. John, bishop of Antioch, and several other eastern prelates, held another council at Ephesus, and issued a severe sentence against Cyril; and though a reconciliation was effected between John and Cyril in 433, the disciples of Nestorius continued to propagate his doctrines throughout the East. They met with numerous adherents, particularly in Persia, where they found zealous auxiliaries in Barsumas, bishop of Nisibis, and Maanes, bishop of Ardashir. The Persian king expelled all the orthodox Christians, and made the chief cities of the monarchy, Seleucia and Ctesiphon, the seats of a Nestorian patriarch. A famous Nestorian school was established at Nisibis, and before the close of the 6th century the heresy had spread over Chaldea, Assyria, Syria, Egypt, and Arabia, and had penetrated to India, Tartary, and China. Their patriarch was nominally of Babylon, but his actual see was at various times Seleucia, Ctesiphon, Bagdad, and Mosul. They were almost from the first divided among themselves, and at various synods adopted doctrines, such as the existence of two distinct persons in Christ as well as two distinct natures, which it is not agreed that Nestorius himself ever taught. A portion of them adhered to the Monophysite heresy. (See CHRISTIANS OF ST. THOMAS.) In 1551 a dispute arose among the Nestorians respecting the election of a patriarch, one party demanding Simeon Barmamas and another Sulaka or Siud. Sulaka, having submitted to the pope, went to Rome, was consecrated by Julius III. in 1553, taking the name of John, and returned to Chaldea with a number of missionaries well acquainted with the language. The party of Nestorians whom he reconciled to the communion of the Roman see received an accession in 1555 in the person of Simeon Denha, archbishop of Jelu, who afterward succeeded to the patriarchate and removed his see to Ooroomiah in the mountainous part of Persia. All his successors up to the present time have borne the name of Simeon, and are called patriarchs of Babylon. These united Nestorians are commonly known as Chaldean Christians. They number perhaps 80,000, and are found principally on the western slope of the Koordish mountains. They do not acknowledge the name of Nestorians, calling themselves only Kaldani. Their patriarch is appointed by the pope, but they say mass in Chaldaic according to their ancient custom, and they have many practices which differ widely from those of western Christians. The non-united Nestorians recognize Nestorius as one of the fathers of their church; but not as its founder. They inhabit the W. part of Persia, and number about 70,000. They profess the Nicene creed with a few modifications, but assert the distinction of persons and natures in Christ; refuse the title of "Mother of God" to the Virgin Mary; disbelieve in purgatory, but pray for the dead; acknowledge 7 sacraments, though it seems uncertain which they are, burial being sometimes reckoned as one; permit marriage to all the clergy except bishops and the patriarch (though this restriction was violated by the patriarch Mar Yohannan in 1859); and discard auricular confession, though it is prescribed in their ancient books. It is difficult in fact to ascertain precisely what they believe. "I was assured," says Col. Shiel, "by an American missionary to the Kaldani that their belief was in perfect accordance with that of the churches of Rome and England; while a Lazarist missionary to the Catholic Kaldani near Ooroomiah affirmed, with equal positiveness, that their disbelief in Christ's Godhead was complete. The fact seems to be that the Nestorians assign too literal an interpretation to the maxim of being all things to all men. Centuries of oppression and misgovernment have made them too eager in yielding their opinions to those persons with whom they converse, if the latter happen to be superior in station." They offer animal sacrifices to remove sickness. The laity receive communion in both kinds, and there is probably a belief in transubstantiation. They read the Scriptures a great deal, and pray to the saints, but admit no pictures or images in their churches except the image of the cross. The church service is in old Syriac, and there are translations for the use of the people. On the whole the Nestorian church seems to be in a degraded and lifeless condition; but Roman Catholic and Protestant missionaries, chiefly French and American, have labored among them of late years with great success. A Nestorian bishop, Mar Yohannan, visited the United States in 1842–'3, and preached in several Protestant churches.—See "A Residence of Eight Years in Persia among the Nestorian Christians," by the Rev. Justin Perkins (8vo., Andover, 1843).

NET, a fabric of threads woven in open meshes, and used for ensnaring birds, fishes, and wild animals. The contrivance is of very ancient date, as appears from the allusions to it in Isa. xix. 8, 9, but more especially in the representations of nets and of the modes of using them by the ancient Egyptians, preserved upon their monuments. They appear to have been the most efficient means these people possessed of securing game of all kinds; and they consequently had the greatest variety of nets, and of all sizes, sufficient even to enclose considerable tracts of land, into which they drove antelopes and gazelles, and sometimes hyænas and jackals. The animals, being thus confined, became an easy prey to the hunters. Their net for birds was ingeniously contrived, so that when spread and the birds had collected over it, the two sides could be made to collapse by the persons in charge suddenly drawing a rope attached to it. Fishing nets were furnished, as are those of the present day, with wooden floats along one side, and leaden weights for sinking the other; and they were drawn together with the fish they enclosed by numbers of men upon the shore. Large nets are now employed for taking shoals of fish off our coasts, as menhaden for manure, by means of two boats sailing in company and spreading the net between them, weighted along one edge. The fish swimming near the top of the water are arrested in their course, and caught as in a bag by drawing up the lower edge to the surface, the two boats gradually closing together. Gill nets are set across waters frequented by fish, which are caught in the meshes by running their heads through, and the gills preventing their withdrawing them.

NETHERLANDS, or Low Countries (Dutch, *Nederlanden*; Fr. *Pays-Bas*), a country in the W. of Europe, formerly comprising Belgium as well as the present kingdom of Holland or of the Netherlands, to which the name is now politically restricted. The Dutch term Nederlanden, like the French Pays-Bas, signifies low lands or low countries, and is applied to this region because a large portion of the surface is a dead plain, and much of it lies below the level of the sea, from which it is protected partly by natural sand hills and partly by vast artificial dikes or embankments. The Netherlands, in the broadest sense of the term, is bounded N. and W. by the North sea or German ocean, E. by Hanover and Prussia, and S. by France, from which countries it is not separated by any great natural barriers. It is the western termination of the vast plain which stretches across Europe from the German ocean to the Ural mountains. Three great rivers, the Rhine, the Meuse, and the Scheldt, flow through it, and their mud, mixing with the sand banks thrown up by the ocean around their mouths, has formed the country, which is nothing but the delta of those rivers. It was by nature a wide morass, which man has made fertile and habitable by laboriously protecting it by embankments from the overflow of the rivers and the frequent inundations of the sea. At present this region is divided into two kingdoms of nearly equal size, Holland in the north and Belgium in the south. (See Belgium.)—Holland, or, as it is officially styled, the kingdom of the Netherlands, lies between lat. 51° 15′ and 53° 50′ N., and long. 3° 30′ and 7° 13′ E., and is bounded N. and W. by the North sea, E. by Hanover and Prussia, and S. by Belgium. Its length from N. to S. is about 160 m. and its breadth from 60 to 120 m., with an area of 13,890 sq. m. It is divided into 12 provinces, which with their respective populations are as follows:

	Pop. in 1852.	Pop. in 1859.
North Brabant	403,687	414,470
Gelderland	383,894	408,972
South Holland	584,698	627,684
North Holland	506,006	548,048
Zealand	163,818	166,483
Utrecht	158,946	162,249
Friesland	255,915	272,910
Overyssel	224,778	236,769
Groningen	195,264	208,614
Drenthe	86,785	95,186
Limburg	210,975	217,217
Luxemburg	194,619	195,028
Total	3,363,695	3,543,775

Luxemburg, which like the greater part of Limburg belongs to the German confederation, is geographically detached from the rest of the kingdom, and is surrounded by Prussia, Belgium, and France. The provinces are divided into 1,209 communes, which include 87 cities. Holland possesses important colonies in various parts of the world, whose aggregate population far exceeds that of the mother country. The principal of these are: in the East Indies, Java, Madura, Banca, Ternate, Amboyna, Banda, Timor, and extensive territories in Sumatra, Borneo, Celebes, and New Guinea, with a total population in 1856 of 16,354,000; in America, Surinam, Curaçoa, and the islands of St. Eustatius, St. Martin, and Saba, with a total population of 82,761; and in Africa, a few posts on the coast of Guinea, with about 100,000 inhabitants. The entire population of the monarchy somewhat exceeds 20,000,000. The Hague is the capital of the Netherlands, and the other principal cities are Amsterdam, Rotterdam, Utrecht, Leyden, Groningen, Haarlem, Maestricht, Leeuwarden, Bois le Duc, and Breda.—The sea coast of Holland is lined in great part by sand banks cast up by the waves of the ocean, and, where these have not been formed, by vast dikes, built partly of granite blocks brought from Norway, and partly of timbers, faggots, turf, and clay. These embankments are usually 30 feet high, 70 feet broad at the bottom, and wide enough at the top for a roadway. They have been constructed by the labor of many generations, at a cost estimated at not less than $1,500,000,000, and are maintained by an annual expenditure of upward of $2,000,000. Great pains and much expense are bestowed to keep them in order, and their supervision is intrusted to a board of commissioners, under whom there are many boards of sub-commissioners for particular districts, who from time to time report to the central board the condition of the dikes under their care. (See Dike.) The principal rivers of the Netherlands are the Rhine, the Meuse, the Scheldt, and the Vecht, though only the lower parts of these streams are within the limits of the country. The Rhine enters from Germany on the W. with a breadth of nearly ¼ m., and divides into two branches, of which the southern, taking the name of the Waal, runs almost due W. for a considerable distance till it joins the Meuse. The N. branch, after running N. W. a few miles, divides into two streams, of which one, called the Leck, runs W. and joins the E. branch of the Meuse near Rotterdam; and the other, called the Yssel, runs N. and falls into the Zuyder Zee. The Meuse enters Holland from Belgium near the S. E. corner of the kingdom, and flows at first N., then N. W., and finally W., and at Gorkum divides into two branches, one of which, the Merwe, again divides, and after flowing around the island of Ysselmonde falls into the North sea; the other branch, flowing more to the S., also divides into two smaller streams and falls into the same sea. The Scheldt enters Holland from Belgium in the S. W. and divides into two branches, one of which, called the Eastern Scheldt, flows N. between Zealand and North Brabant, and then W. by many channels, enclosing numerous islands, to the sea; the other branch, called the Western Scheldt, flows W. in a broad estuary to the sea. The Vecht enters Holland from Germany on the N. E., and falls into the Zuyder Zee at no great distance from the mouth of the Yssel. All these rivers are kept within prescribed channels by embankments, and are connected by canals, which serve not only for navigation but to prevent inundations by draining off the superfluous waters. Holland originally abounded in lakes, about 90 of which have been artificially drained and converted into cultivable land, while others by inundations have been changed into gulfs of the sea. Among the latter is supposed to be that great inlet of the German ocean, the Zuyder Zee, which covers about 1,200 sq. m. in the N. part of the kingdom, and is thought to have been originally a large fresh water lake. The lake of Haarlem, before it was drained, was about 15 m. in length and 7 in breadth. The Dollart, a lake between Groningen and Hanover, was formed by irruptions of the sea in 1277 and 1287, and occupies about 60 sq. m.—The surface of the country in Holland is almost everywhere a dead level, and such natural elevations as exist are little more than small sandy hillocks. The monotony of the surface is, however, relieved by the numerous canals crossed by frequent bridges, and lined with willows and other trees, with which also the roads are bordered; by large and handsome towns at short intervals; and by countless villas and farm houses, all of which are kept in a state of the utmost order and neatness. The country is everywhere well peopled, and no population in the world exhibit a more uniform appearance of wealth, comfort, and contentment. The soil is naturally poor, but by cultivation has been rendered rich and productive. Wheat, rye, barley, oats, peas, beans, buckwheat, madder, rape seed, hops, tobacco, clover seed, mustard seed, flax, and hemp are extensively raised. The annual average crop of the cereals is about 16,000,000 bushels, and of potatoes about 20,000,000 bushels. The horticulture of Holland has long been famous, and among the flowers tulips and hyacinths are especially cultivated. Pulse and garden vegetables are everywhere raised in great abundance. Very large orchards of apple, pear, and cherry trees are found, especially in Gelderland. The greater part of the soil, however, is devoted to pasturage, for which it is admirably adapted. In South Holland the pasture land is twice as extensive as the arable, while in Friesland the proportion is more than 8 to 1, and the rearing of live stock and dairy husbandry are more productive and profitable than tillage. Upon the excellent meadows created by draining bogs and lakes vast herds of cattle, brought from Denmark and Germany in a lean state, are fattened for market. Immense quantities of butter and cheese of the best quality are produced and exported at high prices. The annual value of these two articles is frequently as high as $35,000,000. Another important product of the soil is peat of a most excellent quality, which is largely used for fuel, and of which extensive beds exist.—The climate of Holland is variable, and subject to great extremes of heat and cold. The temperature has sometimes fallen to 23° below zero and risen to 102°. In winter the rivers and canals are generally frozen for about 3 months. The country is subject to violent gales; the atmosphere is generally damp, dense fogs prevail, and agues, pleurisies, and rheumatisms are frequent. Consumption, however, is not a common disease. The pleasantest months are September and October. From the nature of the soil, which is almost everywhere alluvial clay and sand, there are necessarily no mines in Holland, though a little bog iron has been found. The eastern provinces have some forests of oak, elm, and beech, but in general the country is destitute of trees except those which have been planted by man. Plantations, however, are very numerons, and serve greatly to embellish the vicinity of the towns and villages, the level scenery being beside diversified by groups of wind mills, mostly employed in draining the low grounds. There are no large wild animals and few game birds, though hares and rabbits are plentiful. Storks are very numerous, and remain from the middle of February till the middle of August. They are favorites with the people, and severe penalties are imposed on those who destroy them. Water fowl are extremely abundant, and the waters of the coast are frequented by vast shoals of cod, turbot, and other fish.—The population of Holland is composed mainly of Dutch, with about 700,000 Walloons, Frisians, and Germans, and about 65,000 Jews. The Dutch belong to the great Teutonic family of mankind. The men are generally of middle stature, stout form, and fair complexion. The women are tall and handsome, are very domestic in their habits, and pay the most scrupulous attention to the cleanliness of their houses. Sobriety, steadiness, economy, perseverance, and industry are the most striking features of the national character. Even the youth of both sexes are as sedate and cautious as the older people of other nations. Smoking is very common even among the women. Brandy, gin, and beer are favorite beverages, but intoxication is said to be very rare. "Nothing," says Mr. Nicholls, "can exceed the cleanliness, the personal propriety, and the apparent comfort of the people of Holland. I did not see a house or a fence out of repair, or a garden that was not carefully cultivated. We met no ragged or dirty persons, nor any drunken man; neither did I see any indication that drunkenness is the vice of any portion of the people. The Dutch appear to be strongly attached to their government, and few countries possess a population in which the domestic and social duties are discharged with such constancy. A scrupulous economy and cautious foresight seem to be the characteristic virtues of every class." There is great wealth in Holland, and it is widely diffused among the people, but there is little ostentatious display of it. The people generally live well and comfortably, but frugally. The houses in the towns are plainly built and furnished. The country abounds in villas called *lusts* or pleasure houses, which are usually built of brick, plastered and painted, and kept in the utmost neatness and order.—There are upward of 600 ship yards in the country, and 220 vessels, with an aggregate tonnage of 54,636 tons, were launched in 1854. The brick manufactories are about 350 in number, the oil mills 812, and the tobacco manufactories 285. The fabrication of earthenware at Delft is extensive and celebrated. Holland has long been noted for its distilleries of spirits, and especially of gin, for which Schiedam is peculiarly famous. In 1858 there were at that place 172 distilleries, employing 615 men. The number in the whole country was 824, and of breweries 376. There are 27 sugar refineries, of which 8 at Amsterdam in 1853 refined 83,000,000 lbs. of sugar. The manufacture of paper is extensive, and there are in the provinces of Friesland, Groningen, Gelderland, and North Brabant upward of 600 establishments for the manufacture of shoes for exportation. The Dutch linens are of superior quality, and the manufacture of linen and cotton goods is carried on extensively in most of the provinces, in establishments numbering in all upward of 500. At Tilburg there are woollen manufactories employing 3,800 persons, and there are extensive silk manufactories at Amsterdam, Haarlem, and Breda. The fisheries of Holland were long famous for their extent and productiveness, especially the herring fishery, which has been carried on since the 12th century, and has been termed the Dutch gold mine. It is a common saying among the people, that "the foundations of Amsterdam are laid on herring bones." In the middle of the 18th century the number of men employed in the herring, cod, and whale fisheries was computed at 100,000. But of late years the fisheries have greatly declined, and in 1854 the number of vessels of all kinds employed was 1,375, of men 7,758, and the value of the produce about $15,000,000.—The commerce of Holland, though not as extensive as formerly, is still great and active. In 1857 the imports were valued at 413,682,840 florins, and the exports at 343,332,758 florins. It was carried on chiefly with Great Britain, Germany, Java, Belgium, France, and Russia. The exports to the United States were valued at 7,651,706 florins, and the imports at 9,345,034 florins. Butter and cheese are among the largest articles of export; of the former about 12,000 tons are exported annually, and of the latter about 20,000 tons. The mercantile marine of Holland in 1859 comprised 2,438 vessels, with an aggregate tonnage of 587,134. In 1858 the entrances of shipping into the Dutch ports amounted to 9,805 vessels of 1,664,200 tons, and the clearances to 8,896 vessels of 1,700,249 tons.—A system of railroads, with an aggregate length of 422 m., connects Amsterdam with Haarlem, the Hague, Rotterdam, and Antwerp on the one hand, and with Utrecht, Arnheim, and Prussia on the other. The internal intercourse and commerce of the country, however, are chiefly carried on by means of the canals, which communicate with the Rhine and other large rivers, and afford an easy and cheap conveyance for merchandise and passengers. The usual mode of travelling on the canals is by *trekschuits* or draught boats, which are dragged by horses at the rate of 4 m. an hour. The principal canal is called the Helder, and runs N. from Amsterdam to the harbor of Nieuwediep on the Helder point, where it joins the sea, and thus affords Amsterdam an easy intercourse with the ocean. The dimensions of this canal are so great that two frigates can pass each other. Its length is 51 m., and its cost was about $4,000,000. It was constructed between 1819 and 1825.—A large part of the foreign commerce of Holland is conducted by the *Handel Maatschapij*, or trading association, which in 1824 took the place of the Dutch East India company, which had for two centuries monopolized the trade with the East. (See EAST INDIA COMPANIES.) The Handel Maatschapij is the agent for the sale of the government colonial produce in Europe, of which it is also the carrier, and farms some branches of the public revenue of the East India colonies. Two thirds of the exports of the colonies pass through its hands, though it has no exclusive trading privileges. Another great association is the "Society for the Promotion of the Public Good," which was organized in 1784 by a few benevolent persons, and has spread till it has 220 branches throughout Holland, with about 14,000 members, each of whom contributes to its funds a small sum annually. Its object is to promote the establishment of schools, hospitals, asylums, and other works of public utility. Its sections hold meetings once a fortnight, at which questions and measures tending to advance the common welfare are discussed, politics and ecclesiastical matters being excluded. Institutions for the relief of the destitute and suffering are abundant, though in general the poor are taken care of by the churches to which they belong. In 1858 there were 7,410 charitable and benevolent associations, including 494 hospitals, 41 lying-in hospitals, 59 infirmaries, 188 asylums, 2 institutions for the deaf and dumb, 2 for the blind, 40 for employing poor laborers, and 47 for the relief of poor travellers. There are 3 great almshouses, one each at Amsterdam, Middelburg, and Groningen, which afford shelter, food, and clothing to a large number of persons. Pauper colonies have also been formed on the waste lands of the country, and the able-bodied men employed in reclaiming them. The expense of these colonies is about $1,000,000 per annum, and the total annual revenues of the charitable institutions of the kingdom exceed $5,000,000.—Education is provided for by the government, and is under the care of the department of the interior. There are 3 universities, at Leyden, Utrecht, and Groningen, which together in 1858 had 1,551 students. At Amsterdam and Deventer there are collegiate institutions called Athenæums, and there are seminaries and primary schools throughout the country, to the number in 1854 of about 4,000, with 466,100 pupils, or about 1 in 7 of the whole population.—By the constitution of Holland full religious liberty is guaranteed to the people, and all churches are equal before the law. In 1854 the population was thus divided: Protestants, 1,985,422; Roman Catholics, 1,201,891; Jews, 62,610; and there were 1,479 persons whose religion was undetermined. The government pays the salaries of all ministers, priests, and rabbis of recognized congregations. Four fifths of the Protestants adhere to the Reformed church of Holland, which holds to the "Confession of Faith" drawn up in the 16th century according to the doctrines of Zwingli and Calvin. It has a presbyterian form of government, and is ruled by a consistory in each congregation, by classes composed of the ministers of several contiguous parishes, together with one elder from each, by provincial synods, and by a general synod which meets annually at the Hague. The number of ministers in the church is about 1,700. There is a Roman Catholic archbishop at Utrecht, bishops at Haarlem, Breda, and Roermond, and two coadjutors, one to the archbishop and one to the bishop of Breda. The majority of the Roman Catholics are in North Brabant and Limburg. The Lutherans number about 320,000, the Baptists 115,000, and the Remonstrants 38,000.—The government of the kingdom of the Netherlands is a constitutional monarchy, of which the crown is hereditary in the house of Orange. All the inhabitants without distinction are entitled to protection for person and property, and all natives are eligible to offices and public employment. Freedom of the press and the right of the people to assemble and to petition are inviolable. The eldest son of the king bears the title of prince of Orange. The king possesses the executive power, declares war, concludes peace, and makes treaties, commands the army and navy, fixes the salaries of all officers, and confers titles of nobility. He proposes projects of law to the legislature, whose chambers he can dissolve at pleasure, though he must command new elections in the course of 40 days after the dissolution, and must convene the new chambers within two months. He has a council of state, consisting of 10 members appointed by himself, which must be consulted about every law and every measure of general interest. The departments of the ministry are not fixed by law; in 1860 it comprised departments of the colonies, of foreign affairs, finances, marine, war, justice, of the interior, of Roman Catholic worship, and of Protestant and other worship. The king, the ministers, a secretary, and two royal princes constitute at present the 18 members of the cabinet council. The legislative power is intrusted to the states-general, composed of two chambers. The members of the upper house, 39 in number, are elected by the provincial states for a term of 9 years, a third of their number retiring every 3 years. Their president is appointed by the king once a year. The members of this house are selected from the class who pay the highest amount of direct taxes. The following is the ratio of their distribution among the provinces: North Brabant, 5; North Holland, 6; Friesland, 3; Drenthe, 1; Gelderland, 5; Zealand, 2; Overyssel, 3; Limburg, 3; South Holland, 7; Utrecht, 2; Groningen, 2. The province of Luxemburg, the whole of which belongs to the German confederation, is not represented in the states-general. The members of the lower house are 68 in number, and are chosen for 4 years from 38 electoral districts, to which they are assigned in the ratio of one representative to 45,000 inhabitants, Amsterdam having 5 representatives. They are chosen at biennial elections by electors who must be 23 years of age and pay taxes varying in different districts from about $8 per annum to about $65. Each member is paid a salary of about $850 a year and his travelling expenses. The speaker of the house is appointed by the king. The king's ministers have a right to sit and speak in either house, but not to vote. The states-general meet at the Hague every year on the 3d Monday in September, and hold their sessions in public. They are obliged by law to sit at least 20 days. A majority is required for a quorum; and no measure can be enacted without the assent of an absolute majority of each house. In each province there are provincial "states," which are legislative and administrative bodies. Beside electing the members of the upper house of the states-general, they are charged with the execution of the laws of the kingdom within their limits, and have power to make special and local laws, which, however, are subject to the sanction or veto of the king. The internal police of the provinces is left to their superintendence. The king appoints a commissioner to preside over their sessions, which are held semi-annually. The members are elected for 6 years at triennial elections, by the same constituencies that elect the members of the states-general. The number of the members of these provincial legislatures varies in each province, that of South Holland, which is most numerous, having 80 members, and that of Drenthe, the smallest, 35. The communes into which each province is subdivided are governed also by local councils elected by the people for a term of years.

In 1859 the public debt of the kingdom amounted to 1,086,343,880 florins. The receipts were 78,575,364 florins, and the expenditures 77,425,241. The receipts of the colonial administrations in 1857 were 82,892,641 florins, and the expenditures 83,209,839. The army in 1859 comprised 58,743 men; and the navy, July 1, 1859, consisted of 83 vessels carrying 1,740 guns, of which 14 were war steamers mounting 94 guns. There were beside about 70 gun boats. The fleet is manned by 6,221 men, including 2,153 marines.—Justice is administered by various courts, the chief of which is the high court of the Netherlands, consisting of a president, vice-president, and 12 judges, appointed by the king from 3 candidates presented to him for each vacancy by the lower house of the states-general. The judges hold office for life. The court hears appeals from the lower courts. All causes in which the state is defendant are tried before this court, and the high functionaries of government are amenable to it only. There is also a provincial court in each province, and subordinate to them district courts, which have each from 5 to 14 judges. In 1853 the number of prisons of all kinds amounted to 216, with 4,087 inmates. There is an excellent prison for male juvenile delinquents at Rotterdam, and another for young females at Amsterdam, which are admirably managed and serve as schools for intellectual and religious training.—The first historical notice of the Netherlands which has come down to us is contained in Cæsar's account of his wars with the Belgæ, the Nervii, and other barbarian tribes who inhabited its morasses. These tribes were mostly of Gallic race, though in some parts of the country several clans of Teutonic origin had established themselves, preëminent among whom were the Batavi, whom Tacitus calls the bravest of all the Germans, and who in fact were always spoken of by the Romans with marked respect. They were the allies, not the subjects of the Romans, and a Batavian legion formed the body guard of the emperors down to the times of Vespasian. During the civil war between Vespasian and Vitellius, Claudius Civilis, a Batavian who had served for many years in the Roman army and had received a Roman education, organized a general confederation of all the Netherland tribes against the Romans; but after a heroic struggle, the insurgents were crushed by the armies of Vespasian, who had now attained the purple, and the Netherlands remained among the provinces of the empire till they were overrun by the northern barbarians in the 5th century. The Batavi still formed the bravest portion of the Roman forces, and their cavalry was particularly distinguished. In the great battle at Strasbourg between the Germans and the army of the emperor Julian, about the middle of the 4th century, the Batavian horse saved the day for the Romans. This was the last of their achievements mentioned in history, and soon afterward the Batavian nation seems to have lost its individuality and to have become merged, together with the Belgæ, in the Frank and Frisian tribes who had invaded and occupied the country. The monarchy of the Franks in the 6th and 7th centuries embraced the whole of the Netherlands. In the 8th century the Frisians revolted, but were routed by Charles Martel in a great battle in 750, and were soon afterward converted to Christianity. At the beginning of the 9th century they formed a part of the empire of Charlemagne. A century later, under the influence of the feudal system, the whole of the Netherlands was in the possession of a number of princes, owning a limited species of allegiance, some to the German empire, and some to the kings of the Franks. In 922 Charles the Simple created by letters patent the first count of Holland, and the dukedoms of Brabant, Luxemburg, Limburg, and Gueldres; and the countships of Flanders, Zealand, Hennegau, Artois, Namur, and Zutphen were established before the 13th century. The most powerful of these potentates was the count of Flanders, whose dominions in 1383 fell to the house of Burgundy; and in 1437 Philip the Good, duke of Burgundy, became master of the entire Netherlands. At this period the country had already become rich and populous, and the commercial cities had acquired a controlling influence in the government, and within their own limits enjoyed almost republican freedom. The states-general, as the parliament was called, held the purse strings of the country, and granted money to the sovereign only when they themselves saw fit. Under the house of Burgundy the Netherlands became the most opulent and populous part of Europe; and their chief cities, Antwerp, Ghent, and Bruges, were especially distinguished for wealth and splendor. By the marriage of Mary of Burgundy, daughter of Charles the Bold, with Maximilian, archduke of Austria, Aug. 18, 1477, the Netherlands became a possession of the house of Hapsburg. Her grandson, the emperor Charles V., resigned them to his son Philip II. of Spain in 1555. At this period the Netherlands comprised the dukedoms of Brabant, Limburg, Luxemburg, and Gelderland; the countships of Artois, Hennegau, Flanders, Namur, Zutphen, Holland, and Zealand; the baronies of Friesland, Mechlin, Utrecht, Overyssel, and Groningen; and the margraviate of Antwerp—in all, 17 provinces. They were reported to contain 350 cities, and 6,300 towns and large villages, beside hamlets, castles, and farm houses. Though these statistics are doubtless exaggerated, it is certain that no other part of Europe was so rich or so densely peopled. The commerce, the manufactures, and the agriculture of the country were highly flourishing; and in spite of occasional troubles and violent contests between the sovereigns and the people, the taxes of the Netherlands were not excessive and the privileges of the provinces not seriously impaired under the rule of Philip's predecessors. The reformation had made considerable progress among the people during the reign of Charles V., chiefly in the cities, and Philip soon after his accession undertook to root out entirely the new doctrines, and to restore the exclusive supremacy of the Roman Catholic church. His father's abdication was carried into effect in the Netherlands, and from the time of his accession in 1555 Philip remained in the country till Aug. 1559, when he departed to his Spanish dominions never to return. He left the Netherlands under the government of his sister Margaret, duchess of Parma, as regent, assisted by Granvelle, bishop of Arras, afterward cardinal, a native of France, who was greatly detested by the people. Three native nobles of the highest rank and character, William of Nassau, prince of Orange, and the counts Egmont and Horn, were nominally associated with Granvelle as councillors of state; but by secret orders from Philip they were deprived of all practical power in the administration, which was wholly in the hands of Granvelle. The arrogance of Granvelle and the attempt to introduce the inquisition provoked a determined resistance, which was headed by the prince of Orange, Egmont and Horn, and other great nobles. An insurrection of the Protestants broke out in Flanders, Aug. 14, 1566, and lasted about a fortnight, during which great ravages were committed on the churches and monasteries. (See ICONOCLASTS.) This outbreak, which was temporarily suppressed by the influence of William of Orange and Egmont and Horn, and by concessions from the frightened duchess of Parma, determined Philip to resort to the most severe measures to suppress Protestantism; and accordingly the cruel duke of Alva, a soldier of great reputation, was sent to the Netherlands in 1567 with a powerful army of Spanish veterans. Egmont and Horn were arrested and beheaded at Brussels, and also many other noblemen of distinction, and for 6 years the country suffered under a tyranny which for extent and ferocity has few parallels in history. The prince of Orange withdrew to Germany, and appealed to the Protestant princes of that country for aid. They allowed him to raise a force of volunteers, and gave him some pecuniary assistance, as did also Queen Elizabeth of England. He reëntered the Netherlands in the latter part of 1568 at the head of an army, and called his countrymen to arms. A long war ensued, distinguished by sieges rather than by battles, and marked by various fortune on both sides. The states of Holland and Zealand conferred almost dictatorial powers on the prince of Orange, with the title of stadtholder; and those provinces equipped a powerful naval force which greatly contributed to the ultimate defeat of the Spaniards and the achievement of Dutch independence. The severity of Alva having driven the greater part of the Netherlands to insurrection, and his attempts to suppress the revolution by force of arms having entirely failed, he was recalled, and departed in Jan. 1574. His successor, Requesens, was instructed to adopt a milder system of government; but he met with little success, and died of fever toward the end of 1575. The famous Don John of Austria, the victor of Lepanto, succeeded him as viceroy; but after gaining several victories over the revolutionary forces, he too died of fever or of poison, Oct. 1, 1578. He was succeeded as regent by his nephew the duke of Parma. In the following year the provinces of Holland, Zealand, Utrecht, Friesland, Groningen, Overyssel, and Gelderland formed the union of Utrecht, and thus laid the foundation of the republic of the Seven United Provinces. From this period the history of the Netherlands divides itself into that of Holland and that of Flanders, or the 10 provinces which remained under the Spanish dominion and adhered to the Roman Catholic faith, and now constitute the kingdom of Belgium. (See BELGIUM.) William of Orange was assassinated at Delft, July 10, 1584, by a fanatical partisan of Spain named Balthasar Geerardt or Gérard. The death of this illustrious hero and statesman, who ranks among the greatest men in history, was a terrible loss to the struggling commonwealth, which owed its existence mainly to his extraordinary wisdom, prudence, and firmness. The Dutch patriots, however, did not despair. They continued the contest with unabated courage and energy, and finally with a success truly astounding when we consider the power and resources of Spain, at that time the first power in the world. Prince Maurice, a son of the murdered statesman, though only 17 years of age, was chosen to succeed his father, and by his military genius and success amply justified the choice of the people. He proved to be one of the greatest generals of modern times, and his career till his death in 1625 was an almost unbroken series of battles, sieges, and victories. About this time the sovereignty of Holland was offered to Elizabeth of England, who declined it, but sent the earl of Leicester to the assistance of the Dutch with a body of troops. Leicester, however, effected little, and was recalled in disgrace in 1587. Philip II. died in 1598, and his successor Philip III. for some years continued the effort to subdue the rebellious Hollanders. But the Dutch by this time had created a fleet that made them the first naval power of the world. Their ships were manned by 70,000 hardy and daring seamen, who swept the remotest seas of Spanish commerce, and finally so impoverished the king of Spain by intercepting the remittances of treasure from the colonies, that at length in 1609 he agreed to a truce for 12 years. During the peace internal dissensions broke out in Holland between the Calvinists and Arminians, whose theological differences were made the basis of political parties, who contended for their respective tenets with great zeal and bitterness. These dissensions were fomented by the ambitious Maurice, who aspired to become hereditary sovereign of Holland, and was already by his influence over the army exercising a species of dictatorship. He was opposed by the venerable Barneveldt, one of the most illustrious of the Dutch statesmen, who had rendered the most signal services to the republic, and was the head of the Arminian party, or as they came to be called the Remonstrants, from a remonstrance which they published in favor of universal toleration. The Calvinist party, of which Maurice was chief, were soon known as Anti-Remonstrants, and those names continue to be used in Holland to the present day. The Calvinists prevailed in the contest for the political supremacy, and Barneveldt and the famous Grotius, another eminent leader of the Remonstrants, were arrested on charges of treason. After an infamous trial, in which party spite and popular clamor were brought to bear on the judges, Barneveldt was condemned and executed, May 13, 1619, at the age of 70 years. Grotius by an artifice escaped from prison, and took refuge in France. On the expiration of the truce in 1621, the war with Spain was renewed. After the death of Maurice, who was succeeded by his brother Henry, operations on land were not for some time prosecuted with much vigor, but on sea the Dutch displayed great energy. They attacked Peru with success, and conquered St. Salvador and a large portion of Brazil, which at that period belonged to the Spanish monarchy. They also made incessant attacks on the Spanish possessions in the East Indies, and laid the foundations of the Dutch empire in that part of the world. On the general pacification of Europe by the peace of Westphalia in 1648, a final treaty was made with Spain, which at length acknowledged the independence of Holland after it had been practically maintained for 70 years. A few years later the republic became involved in war with the English commonwealth, and several great naval battles were fought between the celebrated Dutch commanders Van Tromp, De Ruyter, and De Witt, and the famous English admiral Blake. In a tremendous engagement near the Goodwin sands, Dec. 9, 1652, the Dutch were victorious, and the triumphant Van Tromp sailed along the English coast with a broom at his masthead to indicate that he had swept the channel of English ships. Another great fight took place in Feb. 1653, between Blake and Van Tromp, which lasted 3 days, and in which both sides claimed the victory. In the following June the fleets, each numbering about 100 vessels, again met, the Dutch commanded by Van Tromp, De Witt, and De Ruyter, and the English by Blake, Monk, and Dean; and after an obstinate battle the Dutch were totally defeated. Undismayed by this disaster, the Dutch sent to sea a still greater fleet in July under Van Tromp, which encountered the English off the coast of Holland. Van Tromp was killed at an early period of the battle, and the Dutch were again beaten with the loss of 6,000 men. Peace was soon after concluded between the two republics, and Holland immediately engaged in a war with Portugal concerning their respective possessions in Brazil, in which many Portuguese vessels were captured. The war, however, ended by the expulsion of the Dutch from Brazil in 1654. In 1665 Charles II. of England declared war against Holland, and hostilities on the ocean were prosecuted with much vigor, the Dutch fleet under De Ruyter gaining a great victory over the fleet of the duke of Albemarle at the beginning of June, and even threatening to invade England; while in the following month, after another engagement, the Dutch admirals were forced to take refuge in their harbors. In the following year, however, De Ruyter sailed up the Thames with his fleet, burnt the shipping at Sheerness and Chatham, and blockaded for a short period the port of London. A month later the peace of Breda ended the war, and in the beginning of 1668 Holland entered into an alliance with England and Sweden to check the growing power of Louis XIV. of France, who had seized upon the 10 provinces of the Spanish Netherlands. The fickle and deceitful Charles II., however, being bribed by Louis, ordered a treacherous attack on a rich Dutch fleet from Smyrna, in March, 1672, which was bravely repulsed. Three days afterward he declared war against his late allies, and sent a force to coöperate with the French. Sweden also joined the league against the Dutch, and Louis invaded Holland at the head of 120,000 men commanded by the first generals of the age, and in a few days conquered the provinces of Utrecht, Gelderland, and Overyssel. The Dutch, whose forces did not exceed 25,000 men, were beside divided and weakened by the most violent contests between the partisans of the house of Orange and the opponents of that party, headed by the grand pensionary John De Witt and his brother Cornelius, by whose influence the office of stadtholder had been abolished in 1650 and the states-general made the supreme power. The partisans of De Witt proposed to remove the whole nation to the East Indies rather than submit; but the young prince of Orange, William III., afterward king of England, encouraged the people to resist, and declared he would die in the last ditch. He was made stadtholder by acclamation, was intrusted with dictatorial power, and the De Witts were massacred by a mob at the Hague. The desperate resolution was taken to cut open the dikes and let in the ocean to drown the country and its invaders. This expedient was successful, and the baffled French were forced to retreat with great loss. Peace was restored in 1674. In 1677 the prince of Orange, who continued to hold supreme and almost absolute power in Holland, was married to the princess Mary, daughter of James II. of England, and attained the throne of England by the revolution of 1688. During his life, and for several years after his death in 1701, Holland bore a conspicuous part in the wars that were waged by the European powers against France to check the ambitious projects of Louis XIV. On the death of William III. the anti-Orange party prevailed in Holland, and no stadtholder was appointed, except in the province of Friesland, which recognized the hereditary claim of his cousin John William, surnamed Friso. The republic was governed by the states-general, the grand pensionary, as the chief executive was styled, being till his death in 1720 the eminent statesman and diplomatist Heinsius. In 1747, the Orange party having regained the ascendency, William IV. was made stadtholder of the republic; and on his death in 1751 his infant son William V. succeeded to the office, which he held till 1795, when Holland was conquered by France, and the Batavian republic established. During the 7 years' war, from 1758 to 1763, Holland remained neutral; but in the progress of the American revolution she became involved in war with England, and her fleet sustained a severe defeat from the English on the Dogger bank in 1782, after a bloody fight. The French revolution found warm partisans in Holland among the anti-Orange faction, and their sympathy and assistance, together with an intense frost which enabled the French army to pass the rivers and canals on the ice in the winter of 1794–'5, rendered the conquest of Holland by Gen. Pichegru an easy task. The Batavian republic, which in its closing years was administered by the director Schimmelpennick, a statesman and patriot of eminent ability and integrity, terminated in 1806 by the erection of Holland into a kingdom, on the throne of which the emperor Napoleon placed his brother Louis. Louis ruled with moderation and kindness, but his preference of the interests of Holland to those of France gave such offence to his imperial brother, that in 1810 he abdicated, and Holland was incorporated as an integral part of the French empire. On the downfall of Napoleon the prince of Orange, who had been in exile in England, was declared king by an assembly of notables, under the title of William I., with a constitution limiting his power within moderate bounds. The 10 ancient provinces which had remained under Spanish rule at the time of the great revolution of the 16th century, and had subsequently belonged to the house of Austria, were annexed to Holland by the congress of Vienna, with the object of forming a power of sufficient force to serve as a check to the progress of France toward the N. E. The difference of race, religion, language, and manners, however, prevented the assimilation of the two sections into one nation; and on the outbreak of the French revolution of 1830 the 10 southern provinces revolted, and, aided by the French, established their independence as the kingdom of Belgium, with Leopold of Saxe-Coburg as king. Since the separation Holland has continued flourishing and peaceful, and has made rapid advances in prosperity and opulence. In 1848, after the French revolution of that year, the constitution was still further liberalized, and extensive reforms were introduced. William I. abdicated in 1840 in favor of his son William II., who died in 1849, and was succeeded by William III., the present king.

NETHERLANDS, LANGUAGE AND LITERATURE OF THE. The origin of the Dutch language has been the subject of considerable controversy. The philologists of the last century derived it directly from the old Frisian, which they regarded as holding the same relation to it that the Anglo-Saxon does to the English. Rask was the first to declare that this view was not wholly correct. He supposed that the modern Dutch was indeed, at first, a development of the old Frisian, but that this development was arrested, and the current of the language essentially changed, by an irruption at a remote period of Saxons and Franks into the region of the lower Rhine. By this theory he accounted for the presence of such forms as *tand* (tooth) for the old Frisian *tóth*, and *doen* (do) for the old Frisian *dúa*. More recent investigations, however, have shown that many of the Dutch inflectional forms are at least as old as the corresponding Frisian ones; thus the Dutch infinitives and weak substantives end in *en*, a termination certainly not younger than the Frisian one in *a*. The inference is, therefore, that a single language, belonging to the Low German division of the Teutonic group, was originally common to both Friesland and Holland; that this was spoken in two dialects, and that the northern of those dialects became the modern Frisian of Friesland, while from the southern came the modern Dutch of Holland. The Dutch seems also to contain a few remains of the Belgian dialect of the very ancient tongue spoken by the old Gallic tribes, such as the possessive pronoun *hun* (their). It is less sonorous but softer than the Upper or High German, from which it especially differs in avoiding, as far as possible, all sibilant consonants and hard diphthongs. Its syntax is very similar to that of the German. The most striking characteristics of the Dutch are its descriptive energy and its power of composition. In this latter respect it excels all the modern members of the Gotho-Teutonic family except the Icelandic. Its scientific nomenclature admits not only of such substantives as *sterrekunde* (astronomy; Germ. *Sternkunde*), but of the corresponding adjective forms like *sterrekundig* (astronomical; Germ. *astronomisch*), which in German are generally taken from exotic sources. It is especially rich in terms belonging to commerce and navigation, and to its maritime vocabulary all the northern nations, including the English, are indebted for a multitude of words. The chief dialects spoken in the Netherlands are the Frisian (see FRISIAN LANGUAGE AND LITERATURE); the Flemish (see FLEMISH LANGUAGE AND LITERATURE); the dialect of Groningen and Overyssel, which approaches nearer than any other to the H

German; and the dialect of Gelderland. The last two have no literature of any note.—The first development of the literature of the Netherlands, about the middle of the 13th century, was Flemish rather than Dutch, and this continued to be the case for more than 250 years. But about 1570 the *rederijkerskamer* of Amsterdam, through the efforts of three men, assumed the character of a literary academy. These were the reformer D. Coornhert (1522–'90), H. L. Spiegel (1549–1612), and Roemer Visscher (1547–1620), the real founders of modern Dutch literature. Coornhert's productions are mostly treatises on morality and theology; but one of his poems, *Wilhelmus van Nassauwen*, is still the favorite national song of Holland. The posthumous poem of Spiegel, the *Hertspiegel*, is of an ethic kind. This triumvirate rendered great service by the grammatical works published under their direction by the Amsterdam *kamer*. A linguistic labor of still greater importance was the Dutch-Latin dictionary, begun by the celebrated printer Plantin (1514–'89), and finished by his disciple C. Kilian (died 1607).—At the beginning of the 17th century, and for many years later, Holland, a powerful, wealthy, and free commonwealth, was preëminently the literary country of Europe. The devotion of the learned to the ancient languages was ardent and almost without parallel elsewhere; but a golden age of vernacular literature was ushered in by P. C. van Hooft (1581–1647), who gave a sweetness and harmony before unknown to Dutch speech. His amatory and Anacreontic lines have not been excelled by any later writer; and his *Nederlandsche Historien*, embracing the years between 1555 and 1587, is a model of stately historical narrative. J. van Cats (1577–1660), or "Father Cats," as his countrymen love to style him, wrote for the multitude, whose descendants still almost know his poems by heart. Although recent judicious criticism has somewhat modified the fame so long enjoyed by J. van den Vondel (1587–1689), his is still the greatest poetical name of the century. He wrote much, dramas, lyrics, and satires, and had a multitude of disciples and imitators. One of the best is Antonides van der Goes (1647–'84). J. Oudaan (1628–'92) is the author of two dramas worthy of note, *Johanna Gray* and *Koning Konradijn;* and other dramatic writers are G. A. Bredero (1586–1618), S. Coster, W. van der Nieuwlandt (1584–1635), the Fleming J. Zevecot (1604–'46), whose *Belegh van Leyden* ("Siege of Leyden") may still be read with pleasure, and L. Rotgans (1645–1710), whose dramas are much better than his tedious epic, *Willem III.* A man of large learning and much descriptive talent, C. van Huyghens (1596–1687), produced some not unpleasing didactic poems, like the *Zedenprinten* ("Pictures of Manners"), *Hofwijk*, and *Voorhut*, which with others he included in a collection bearing the quaint title *Korenbloemen* ("Bluebottles"). A rhymed narrative, the *Masker van der Wereld*, by the Flemish Jesuit A. Poirtiers (1606–'75), was once very popular. The *Lof der Feldzucht* ("Eulogy of Avarice") and the domestic elegies of J. de Decker (1609–'66) are yet frequently quoted; *Roselijns Oochies* is a pretty idyllic effusion by D. Joncktyns (born 1600); and the pastoral poems of J. B. Wellekens (1658–1726) are graceful and imaginative. The almost universal use of Latin, as a language through which a vastly larger audience could be reached, left little room for Dutch prose. Several translations of the Bible, both from the original tongues and the Vulgate, some biblical commentaries, and a number of other theological treatises met with a wide circulation. The *Bataavsche Arcadia* of J. van Heemskerk (1597–1656), suggested by the *Decamerone* of Boccaccio, is the only work that deserves the name of a romance. Beside Hooft, the historians are P. C. Bor (1559–1635), E. van Meteren (1535–1612), L. Aitzema (1600–'69), and G. Brandt (1626–'85). The Dutch navigators, as Barentz and Heemskirk in their search for a north-east passage, Gerritszoon in the Australian regions, and Noort and Spilbergen in the extreme Orient, added much to geographical knowledge in this century. Many of these explorers wrote narratives of their voyages, versions of which appeared in various languages. Among these works are J. Nieuwhof on China (1665), P. Baldeus on Ceylon and Malabar (1672), M. G. de Vries on Japan (1642), G. Schouten on the East Indies (1696), C. de Bruyn on eastern Europe and western Asia (1698), and W. Bosman on Guinea (1705).—The 18th century offers a marked contrast to its predecessor. The literature of the 17th century gave way in the 18th to imitation of French models. Few authors escaped this contagion. One of these, however, is H. K. Poot (1689–1733), the farmer-poet, whose style is pure and natural, and whose erotic and idyllic verses are marked by ease and liveliness. His most striking pieces, perhaps, are *Wachten* ("Watching") and *Landleven* ("Rural Life"). A biblical epic which has considerable merit, but which was followed by a number of bad imitations, is the *Abraham* of A. Hoogvliet (1687–1763). The *Rottestroom* of D. Smits (1702–'52) also originated a school known as the stream poets, who sang the beauties of all the Dutch rivers. Of the two brothers W. van Haren (1710–'68) and O. Z. van Haren (1713–79), the elder left a legendary, knightly tale in verse, *Friso*, and some lighter compositions, among which are *Leonidas*, *Menschelijk Leven* ("Human Life"), and the *Hof van den Vrede* ("Court of Peace"); the younger was the author of two tragedies and a lyrical epic, *De Guezen*, woven out of the popular national ballads. A sort of transition poetical period, the dawn of the day of Bilderdyk and Tollens, begins with 1780. It was initiated by J. Bellamy

(1757–'86), whose *Roosje* is the most touching and beautiful ballad in the language, and was further characterized by the astronomer P. Nieuwland (1764–'93), whose *Orion* is a stately and, in some portions, sublime epic, and by H. van Alphen (died 1803), whose poems for children, have been frequently reprinted. The purest prose of the century is that of J. van Effen (1684–1735), who possessed not a little of the humor and grace of his model, Addison, of whose chief work his *Hollandsche Spectator* is an imitation. The romance style was developed by two women, A. Deken (1741–1804) and E. Wolff (1738–1804); their novels, written in conjunction, though somewhat diffuse, are successful pictures of Dutch life and manners. The lengthened *Vaderlandsche Historie* of J. Wagenaar (1709–'93) is impartial and trustworthy, but the diction is rather dull and heavy. The other historians are G. van Loon (born 1683), S. Styl (1731–1804), and A. Kluit (1737–1807). The *Vaderlandsche Woordenboek* (1785–1800), in nearly 40 volumes, by J. Kok, is a treasury of information concerning the history and topography of Holland. In philology L. ten Kate (1674–1732) anticipated many of the ideas of Grimm and the later Teutonic school. He and B. Huydecoper (1695–1778), who edited one or two of the old Flemish chronicles, were of great service to their native tongue. D. van Hoogstraaten (1658–1724) attained some eminence as a lexicographer. In science the philosophers W. J. 'sGravesande (1648–1742), N. Hartsoeker (1656–1725), and P. van Musschenbroek (1692–1761) gained a European renown, as did those disciples of Boerhaave, P. Camper (1722–'89) and G. van Swieten (1700–'72). J. Lulof (1711–'68) wrote on geography, and the Schultens and S. Rau were well known as orientalists.—The modern revival of Dutch letters is coincident with the French revolution, having fairly commenced some little time before the opening of the 19th century. Rhynvis Feith (1753–1824) did much toward bringing in this new epoch. His reputation is still maintained by a series of admirable historical odes, including one on De Ruyter, and one entitled *Washington*. The *Taal*, *Schilderkunst*, and other productions of C. Loots (1764–1834) bear much resemblance to the style of Helmers, but are much superior in energy and force. E. A. Borger (1775–1820), a theologian, A. Simons (1769–1834), and J. Kantelaar (1759–1821) have also left several tasteful and polished lyrics. But the greatest of modern Dutch poets, if not of all Dutch poets, is Willem Bilderdyk (1756–1831). Of his multitudinous works, *Leidens Ramp* ("The Disaster of Leyden") is full of spirited action and sustained interest; the *Ziekte der Geleerden* ("Maladies of the Learned") is a powerful treatment of a subject by no means pleasing; and the *Buitenleven* ("Country Life") possesses every beauty but that of originality. His most remarkable composition, however, is an epic entitled *Ondergang der eerste Wereld* ("Destruction of the First World"), of which only the first 5 books were completed. The same author's *Geschiedenis der Vaderlands*, in prose, has been published since his death by B. F. Tydeman. Another poet of unbounded popularity is H. C. Tollens (1780–1856). Especially admirable are his narrative poem *De Overwintering op Nova Zembla*, an account of Barentz's famous expedition in 1594–'6, his ballads *Jan van Schaffelaar* and *Kenau Hasselaar*, and his stirring national lyric, the *Wapenkreet*. The example and influence of Bilderdyk and Tollens have given birth to a crowd of minor bards. Some of the most meritorious are J. F. Boedyk (died 1850); B. H. Lulofs (1787–1849), author of the *Watersnood;* W. Messchet (died 1844), whose *De goude Bruiloft* is justly praised; H. A. Spandaw (born 1775), of whose works the *Neerlands Zeeroem* and the *Vaderlandsche Poezij* are popular; W. de Clercq (1793–1844), a celebrated improvisator; J. Immerzeel (1776–1841), also known for his biographies of the artists; B. Klyn (1764–1829); A. C. W. Staring van den Wildenborch (1767–1840), the best modern humorist, of whose peculiar manner his *Iamben* and *Zephir en Cloris* are good examples; and P. Moens (1767–1843). Living lyrical and descriptive poets are I. da Costa, a Jew, who, since the decease of Tollens, occupies the highest place in the modern Dutch Parnassus; C. G. Withuys; S. J. van den Bergh; J. van Beers, whose latest volume (1860) is called *Levenbeelden;* J. A. Alberdingk Thym, L. van den Broek, and J. J. L. ten Kate. Among those who wrote for the stage in the latter part of the last century were S. J. Wisselins (1769–1845), J. Nomsz, J. van Walré (1759–1837), H. H. Klyn, and A. Loosjes (1761–1818), the last of whom also gave to the world some pleasant tales and sketches. Still later dramatists are the prolific comedy writer Ruysch and J. Hilman. The novels of E. Kist (1758–1822) and of A. Fokke (1783–1812) are still much read; but they have been excelled by the romances of J. van Lennep (born 1802), a son of D. J. van Lennep (1774–1853). He has published a series of historical tales under the general title *Onze Voorouders*, and some of his works, as "The Rose of Dekama" and "The Adopted Son," have been translated in England and America. He is also the author of a good abstract of the history of Holland, 2 or 3 lively comedies, and many poems. The tales of J. de Vries (born 1774), A. Drost (1810–'34), C. P. E. Robidé van der Aa (1791–1851), P. A. S. van Limburg Brouwer, and C. van Schaick (born 1808), have had a large circulation. As a model of prose style, J. H. van der Palm (1763–1840) is esteemed superior even to Van Effen, while M. C. van Hall (born 1767), J. Kinker (1767–1845) and Amorie van der Hoeven (born 1798) are likewise celebrated as prose writers and orators. J. W. te Water (1740–1822) and J.

Scheltema (1766–1835), in domestic history, and M. Stuart (1765–1826) and H. Muntinghe (1752–1824) in ecclesiastical and universal history, have been accompanied or followed by J. H. Janssens, G. van der Maaten, T. Kunivers, J. C. de Jonge (whose *Geschiedenis van het Nederlandsche Zeewezen* was completed in 1856), J. C. den Beer Portugael, and a multitude of others. Witzen Geysbeek (1779–1833) is the author of a valuable critical anthology of the Dutch poets. Living critics and *littérateurs* are W. J. A. Jonckbloet, whose edition of the *Reinaert de Vos* is the best yet issued, N. Beets, W. J. Hofdyk, A. de Jager, and D. Buddingh. The Dutch dictionary of P. Weiland (1755–1842), founded upon that of Plantin and Kilian, is at present the best lexicographical authority. The orthography of the language, which was previously very unsettled, was rendered uniform by the adoption in the schools, in 1804, of the system proposed by M. Siegenbeek (born 1774), the compiler of several works on the Dutch language and literature. In spite of the opposition of Bilderdyk and others, the new method is now in general use. A. Ypey (1769–1837) and Westreenen de Tillandt have produced some valuable essays on Dutch linguistics, while S. F. W. Roorda van Eysinga, Hoffman, A. Hardeland, and others have written on various foreign languages. Geography is indebted to Hogendorp (died 1835), to Siebold, and to Meylan, well known writers on Japan, and for descriptions of the Dutch East Indies to C. J. Temminck and J. van der Aa. The other sciences are represented by the Vorsts in theology; Mulder, whose chief work has been rendered into English, in chemistry; and the Vroliks, C. L. Blume, and R. B. van den Bosch in the natural sciences. Literary and philosophical societies, publishing valuable transactions, exist in Leyden, Utrecht, Haarlem, and in the Dutch East Indies at Batavia, while the *Koninglijk Instituut*, formed during the reign of Louis Bonaparte upon the plan of the French institute, is the highest scientific authority of the land. The leading critical and learned journal is the *Vaderlandsche Letteroefningen*, established in the last century, and which for many years subsequent to 1803 had a rival styled *Recensent ook der Recensenten*.

NETTLE, the name of various species of the genus *urtica* (Lat. *uro*, to burn), herbaceous plants armed with stinging hairs, contact with which produces a burning sensation. The large stinging nettle (*U. dioica*, Linn.) grows in clusters about the roadsides, with stems from 3 to 6 feet high; its leaves are opposite, heart-shaped, and toothed; its flowers small, obscure, green, borne in axillary panicles, which appear in pairs, spreading and branched. The small nettle (*U. urens*, Linn.) is an annual, appearing in rich gardens as a weed; it has leaves with 3 to 5 nerves, and axillary racemes, which are mostly simple and generally shorter than the leaf stalk; the whole plant is covered with stinging hairs like the preceding. Both are adventitious from Europe. The tall wild nettle (*U. gracilis*, Aiton) is very distinct from these, with slenderer and long-petioled leaves, smaller flowers, and scarcely any stinging hairs except on the petioles and principal veins of the leaves; it is to be found in the moist grounds of the northern states. The purplish nettle (*U. purpurascens*, Nuttall) has ovate and mostly heart-shaped leaves, globular flower clusters, and a slender stem from 6 inches to 3 feet high, beset with scattered stinging bristles, which are likewise found upon other portions of the plant; it occurs in shady places on the alluvial soils of Kentucky and southward.—The nettles belong to the natural order of *urticaceæ*, whose prevailing qualities are acrid and narcotic. The species of this order are widely dispersed over every part of the globe, sometimes found growing in the driest places, and then again in the dampest recesses of the forest. The stinging property of the juice, resident in the hairs, is owing to its excessive causticity; and in some East Indian species this is very remarkable. The wounds from the devil's leaf (*U. urentissima*) are said to have caused death. Some medicinal qualities are attributed to certain other kinds, and the tenacity of the fibres of the stalk of some species affords a kind of hemp used for making lines and cordage. According to Roxburgh, the tuberous roots of *U. tuberosa* are esculent, being eaten raw, boiled, or roasted, by the natives of certain districts in the East Indies. The leaves and seeds of an Egyptian species (*U. membranacea*) are considered as an emmenagogue. The total number of species in the order is supposed to be more than 300.—There are other plants bearing the name of nettle, such as the nettle tree (*celtis*), having leaves resembling some kinds of nettle, but the similarity ends there; and the dead nettles (*lamium*), which however belong to the natural order of *labiatæ*, or the mint family.

NETTLE RASH (*urticaria*), an exanthem characterized by an eruption of patches whiter or redder than the surrounding skin, and attended with intense itching. The disease has been divided into three varieties: *urticaria febrilis*, *U. evanida*, and *U. tuberosa*. The febrile variety is preceded by a feeling of general uneasiness, headache, nausea, and vomiting. These symptoms are followed by a troublesome itching and the appearance of an eruption, commonly most abundant about the shoulders, loins, or thighs. The patches are irregular in size and form, sometimes rose-colored with whitish border, sometimes white with rose-colored border, sometimes few in number, sometimes covering the greater part of the surface, and giving rise on the face to great disfigurement and a feeling of stiffness and tension. The patches are evanescent, rapidly disappearing but only to give place to a new eruption. For the first day or two the disease is apt to be attended with a little fever, but this soon subsides, and after a variable time, generally about a week, the eruption disappears, leaving no traces. In *U. evanida* there is no febrile movement, and the disease is frequently chronic, the eruption often appearing and disappearing several times a day, and frequently assuming the appearance of long wheals as if produced by a whip. *U. tuberosa* is the rarest and the most severe of the forms of nettle rash, in which the eruption is in the form of red swollen patches of the breadth of the hand, attended with an intolerable itching. The patches extend deeply into the skin, are numerous, and produce a very disagreeable feeling of swelling and stiffness. The rash commonly shows itself in the evening to disappear in the morning, leaving a sense of weakness and prostration. It occurs chiefly in habits impaired by excess, and its course is often tedious and intractable.—Nettle rash is most common in nervous persons with a delicate and irritable skin, and consequently in women and children. Its most frequent cause is some irritation of the digestive organs; with some persons the use of a particular article of diet is invariably followed by an eruption of nettle rash, the offending article varying greatly in different cases, and only to be detected by experience. There are some ordinary articles of diet, as mussels, crabs, several of the richer varieties of fish, &c., which act as true poisons in certain individuals, producing a violent eruption of *urticaria*. Here the symptoms are often excessively severe, the patient suffering from intense headache and giddiness, violent nausea and vomiting, colicky pains in the stomach and bowels, free purging, &c. Sometimes there are violent pains in the back and limbs, sometimes a total loss of sensation and motion. The febrile reaction is often severe, and the eruption is general, attended with great swelling and violent itching and tingling. In ordinary febrile *urticaria*, rest, attention to diet, a cooling regimen, and the use of the tepid bath, are all that is necessary. Occasionally an alkaline wash may be found useful in relieving the itching. *U. evanida* is an intractable complaint, and is best treated by strict regulation of the diet. In the severer forms of nettle rash produced by fish poisoning, &c., the rash is of but minor consequence; the poison should first be got rid of by stimulating emetics, and afterward the treatment must be conducted on general principles.

NETTLETON, Asahel, D.D., an American clergyman, born in North Killingworth, Conn., April 21, 1783, died May 16, 1844. He was graduated at Yale college in 1809, and entering at once upon the study of theology was licensed to preach in May, 1811, by the west association of New Haven co., and in 1817 was ordained as an evangelist by the south consociation of Litchfield co. He had studied with the view of becoming a missionary, but the effect produced by his preaching was so powerful that he was induced to postpone carrying out his intention, although he did not give it up entirely until 1822, when his health failed. Immediately after being licensed he went to the E. part of Connecticut, bordering on Rhode Island, and visited several places where Davenport had labored during the religious excitement of 1740 and 1741, and which still showed the effect of his teachings. From 1812 to 1822 he preached revivals in 32 villages of Connecticut, among which were Derby, Danbury, Bloomfield, Chester, Bolton, Manchester, Salisbury, Waterbury, Rocky Hill, New Haven, Wethersfield, Farmington, Litchfield, and Tolland; in Massachusetts, in the towns of Pittsfield, Lenox, Lee, and Wilbraham; and in New York, at Saratoga, Ballston, Malta, Milton, Schenectady, and Nassau. In most of these places his ministrations were attended with the greatest success. He never completely regained his health after an attack in 1822 of typhus fever, from which for a long time he was not expected to recover. In the interval of quiet which his enfeebled constitution demanded, he published a volume of "Village Hymns" (New York, 1824), which had an extensive circulation. He resumed his active labors in 1824. In 1827 he went to Virginia for the sake of his health, and returning in 1829 preached in New England and New York until 1831. In the spring of that year he made a voyage to England, passing some time also in Scotland and Ireland, but his preaching did not satisfy the expectations that had been formed of it. Returning in 1832, he was shortly afterward appointed professor of pastoral duty in the newly organized theological seminary at East Windsor; and although he did not accept the office, he took up his residence in the place, and lectured occasionally to the students. Dr. Nettleton's sermons were chiefly extemporaneous, and often doctrinal, rarely addressing themselves to the imagination. In his character there was a vein of eccentricity, which perhaps hindered to no small extent his usefulness. In later life his opposition to the doctrinal views of the New Haven school of theology gave a decided coloring to all his intellectual efforts, although he did not participate publicly in the controversy.

NEUFCHÂTEL (Germ. *Neuenburg*), a W. canton of the Swiss confederation, consisting of the former principality of Neufchâtel and the county of Valengin or Valendis, bounded N. and N. E. by the canton of Bern, S. E. by Freyburg and Vaud, S. by Vaud, and W. and N. W. by France; greatest length 36 m., greatest breadth 18½ m.; area, 296 sq. m.; pop. in 1842, 59,000; in 1860, over 78,000. Several ridges of the Jura mountains traverse the canton. The lake of Neufchâtel, 28 m. long, 7 m. wide, and 400 feet deep, separates Neufchâtel from Freyburg and Vaud, and is connected with the river Rhine by several smaller lakes and streams. Cattle, wine, fruit, hemp, flax, and grain are the principal agricultural products, but the grain crop is not sufficient to sustain the population. The raising of cattle is the most important branch of agricultural industry. With the exception of 6,000 Roman Catholics, the people all belong to the Reformed church. The principal language is French, but the German is also spoken. Watch making, lace making, and cotton manufacture are the leading industrial pursuits. The constitution of the canton is democratic. Its revenue averages $60,000, its contribution to the federal treasury less than $5,000; its quota of men in the federal army is 1,662.—Neufchâtel belonged to Burgundy until A. D. 1032, when it became part of the German empire. After having been a fief of the counts of Freyburg and the margrave of Hochberg, it became a possession of the Longueville family, and was inherited from them by William III. of Orange, who ceded it to Prussia. It remained with Prussia as a principality with a separate government until 1806, when Napoleon compelled Prussia to cede it to Marshal Berthier. In 1814 Prussia regained possession of Neufchâtel, and procured its admission into the Swiss confederacy, it being the only canton with a monarchical constitution. In 1848 a revolutionary movement severed the connection with Prussia; and an attempt of the royalist party in 1857 to reinstate the Prussian authority having been frustrated, the independence of the canton was at last recognized by Prussia, May 26, 1857.—NEUFCHÂTEL, the capital, is situated at the embouchure of the river Seyon into the lake of Neufchâtel; pop. 8,500. It contains many flourishing industrial establishments, two hospitals founded by benevolent citizens at a cost of $80,000 and $250,000 respectively, a college, an orphan asylum, and other richly endowed institutions of public charity.

NEUHOF, THEODOR VON, baron, a German adventurer, born in 1690, died in London, Dec. 11, 1756. He was the son of a Westphalian nobleman, studied in Münster and Cologne, was compelled to leave the latter city on account of having killed in a duel a young man of high family, and obtained through the influence of the Spanish minister at the Hague a lieutenancy in the Spanish army in Africa. He fell into the hands of the Moors, and is believed to have been employed during 18 years as interpreter by the dey of Algiers. In 1735 he repaired at the head of two regiments, chiefly composed of Tunisians and Algerians, to Corsica to assist that island in its struggle against Genoa. Baron Neuhof ingratiated himself so much with the Corsicans that they elected him as their king, April 15, 1736, under the name of Theodore I. He succeeded in securing the alliance of the Netherlands; but the French coming to the assistance of the Genoese in 1738, the Corsicans were again subdued, and Neuhof was compelled to resort to flight. In 1741, when the French garrison left the island, he endeavored to regain his power, but was not successful, and spent the remaining part of his life in England, where a subscription, headed by Walpole, saved him from his creditors. His monument bears the inscription: "Fortune gave him a kingdom, and in his old age withheld bread from him."—There are various other versions of Neuhof's life and adventures, but the above is that most generally credited by his own countrymen. He left a son who assumed the name of Col. Frederic, was in the duke of Würtemberg's service, published two historical works on Corsica, and shot himself in Westminster abbey, Feb. 1, 1796.

NEUILLY, a town of France, in the department of Seine, on the right bank of the river Seine, 1½ m. N. W. from Paris; pop. in 1856, 23,147. The river is here crossed by a handsome bridge of 5 arches, each 120 feet wide. The park, which extended for some distance along the Seine, was a favorite resort of the Parisians, but has been cut up into villa sites. The principal object of interest is however the ruined palace, once the residence of Louis Philippe. It was destroyed by the populace, Feb. 25, 1848, with the exception of one wing. Louis Philippe adopted the title of count of Neuilly during his exile.

NEUKOMM, SIGISMUND, chevalier, a German composer, born in Saltzburg, July 10, 1778, died in Bonn in April, 1857. He was educated by his kinsmen Michael and Joseph Haydn, and in 1829, after a busy career in various parts of the world, accompanied Prince Talleyrand to England, where he passed the greater part of his remaining life. He excelled as a composer of sacred music, and his oratorios of "Mount Sinai," produced at the Derby musical festival of 1831, and "David," at that of Birmingham in 1834, are impressive and popular works. He produced in addition to these an immense number of cantatas, songs, psalms, voluntaries for the organ, symphonies, quartets, sonatas, &c., his compositions, both vocal and instrumental, amounting to nearly 800. In the latter part of his life he was afflicted with partial blindness; but until his retirement to Bonn, a few years previous to his death, he was an indefatigable traveller over almost every part of Europe.

NEUMANN, KARL FRIEDRICH, a German orientalist, born in Reichmannsdorf, near Bamberg, Dec. 22, 1798. He is of Jewish extraction, and at an early age entered a counting house in Frankfort-on-the-Main, whence he repaired to the university of Heidelberg. He subsequently studied at Munich and Göttingen, and in 1822 was appointed professor of history at Spire, but was compelled on account of his liberal views to retire. He next devoted several years to the study of the oriental languages, particularly the Chinese and Armenian, and in 1829–'30 visited China to make a collection of works by native authors. He returned to Europe with 10,000 volumes, of which 2,500 were placed in the royal library of Berlin. In 1831 he was appointed professor at Munich, where his lectures on the Armenian and Chinese languages and literature attracted much attention; but his political sympathies again involved him in trouble, and for too open an expression of his democratic views in 1848 he was in 1852 deprived of his professorship. Among his numerous works are: *Mémoires sur la vie et les ouvrages de David*, an Armenian philosopher of the 5th century (Paris, 1829); "History of Vartan" and "Vabram's Chronicle of the Armenian Kingdom in Cilicia" (London, 1830), both translated from the Armenian into English; *Lehrsaal der Mittelreich* (Munich, 1836); "History of the Anglo-Chinese War" (Leipsic, 1846); "The People of Southern Russia in their Historic Developments;" and translations from the Chinese and other languages.

NEURALGIA (Gr. *νευρον*, nerve, and *αλγος*, pain), an affection of which pain is the essential and characteristic feature, and which depends on some disease affecting the structure or function of the nerves or of their centres. The varieties of neuralgia are very numerous. Some are distinguished according to the nerve affected; as neuralgia of the trifacial nerve, commonly called tic douloureux; sciatica, or neuralgia of the sciatic nerve; intercostal neuralgia, affecting the intercostal nerves, &c. Other varieties are described according to the locality which is the seat of pain; as gastralgia, or pain in the region of the stomach; nephralgia, or pain in the region of the kidneys, &c. Other varieties again are indicated by the causes which produce them; as miasmatic neuralgia, the neuralgia caused by marsh miasm; saturnine neuralgia, the neuralgia produced by the poison of lead, &c. The causes of neuralgia may be classified as constitutional and local. The principal constitutional causes are: 1, the impoverished condition of the blood, resulting either from hæmorrhage or the exhausting effects of disease, such as fevers, chlorosis, &c.; 2, the miasm of paludial regions; 3, the *materies morbi* of rheumatism; 4, the virus of syphilis; 5, the circulation in the blood of poisonous secretions, such as urea and bile; 6, the poisonous effects of lead, and probably of some of the other metals; 7, the functional derangement of the nervous system in the disease known as hysteria. The local causes are: 1, inflammation of the delicate fibrous sheath which envelopes the nerves, called the neurolemma; 2, the development of tumors near the origin, or along the course, or amid the ramifications of the nerves, as neuromata, fibrous tumors growing from the nerve sheath, and cancerous, aneurismal, cartilaginous, or bony tumors, so situated as to stretch or press upon the nerves; 3, the bulbous expansion of the extremities of divided nerves, occurring after amputation, and causing painful stumps; 4, the pinching of nerves in the cicatrices or scars of lacerated wounds.—The successful treatment of a neuralgia depends of course on a correct appreciation of the causes that produce it. Where it arises from constitutional causes, it is generally amenable to treatment. The neuralgia that depends on an impoverished state of the blood yields almost invariably to iron tonics, good diet, and outdoor exercise; that which arises from the effects of paludial poison disappears rapidly under the use of quinine; neuralgia of rheumatic origin is ordinarily controlled by the preparations of colchicum, the alkalis, alkaline and sulphur baths, &c.; while the neuralgia caused by lead poison has its specific antidote in the iodide of potassium, a remedy which is useful also in the neuralgia of syphilitic origin. The neuralgia which occurs in hysteria yields, like most of the protean phenomena of that disease, to the mineral tonics, electricity, shower baths, and exercise. Before speaking of the treatment of the forms of neuralgia caused by local disease, it is to be remarked that the seat of pain in these cases does not always correspond with the location of the cause of irritation. For instance, a tumor within the cranium may produce pain at the extremity of the sensitive nerves, near the origin of which it is located; or pressure in the course of a nerve may cause pain in its ultimate ramifications. Where neuralgia is caused by irritation near the origin of the nerves, in the brain or spinal cord, its radical cure is generally impracticable; where it depends on the pressure of tumors that can be removed, the pain will generally disappear with the removal of the cause. In inflammation of the nerve sheath, local counter-irritation, by cups, blisters, issues, setons, &c., usually gives relief, and generally effects a cure. The neuralgia of painful stumps and painful scars, and of obstinate cases of inflammation of the neurolemma, requires surgical interference, such as reamputation, removal of the cicatrix, or exsection of a portion of the diseased nerve. Temporary relief may be given in all forms of neuralgia by the administration of powerful anodynes. Those most commonly used are morphine, the active principle of opium, and aconitine, the active principle of the *aconitum napellus* or monkshood. These may be used internally or externally. A solution of morphine injected into the areolar tissue beneath the skin, near the seat of the neuralgia, gives more prompt relief than when given by the stomach. Aconitine is generally used externally, in ointments, in the proportion of ¼ or ⅛ grain to the drachm of ointment; it gives almost instantaneous relief.

NEUROPTERA (Gr. *νευρον*, nerve, and *πτερον*, wing), an order of insects characterized by powerful jaws, 4 reticulated, membranous, naked wings, and the absence of sting or piercer. They include the dragon and May flies, ant lion, white ant, and similar predaceous insects, which undergo a complete or partial metamorphosis. The larvæ are 6-legged, voracious and carnivorous, living in the water, on trees, or in the ground. Only the white ants and the wood ticks are injurious to vegetation; the others are rather beneficial to man by devouring aquatic and flying insects, plant lice, and similar pests. They are generally of elegant proportions, often prettily marked, and possess great powers of flight. Kirby separated the May or caddis flies (*phryganeadæ*), and formed of them his order *trichoptera*. It is commonly believed that the ravages of white ants and their congeners are confined to tropical regions and to dead or decaying vegetation; but recently at Salem, Mass., a white ant, allied to the genus *termes*, has been discovered making its mines and galleries, attacking and destroying with its colonies the roots of grape vines in greenhouses, and making their chambers even in the living wood.

NEUSIEDLER LAKE (Hung. *Fertő*), after Balaton the largest lake of Hungary, situated near the Austrian frontier on the confines of the counties of Oedenburg (Soprony) and Wieselburg (Mosony); length about 23 m., breadth 7 m., depth 9 to 13 feet. The reedy banks of the lake shelter innumerable water fowl. The E. side is marshy, adjoining the extensive marshes of Hánság. In times of sudden inundations the overflowing waters are carried through an artificial canal into the river Rabnitz. The W. bank is surrounded by beautiful vine-clad hills, at the foot of which the town of Rust is situated. Other neighboring towns also W. of the lake are Oedenburg and Eisenstadt.

NEUSTRIA, the name of the western division of the Frankish empire, under the Merovingians and Carlovingians, from the partition of the provinces by the sons of Clovis in 511 to the beginning of the 10th century. In the earlier part of that period Neustria extended from the Meuse, which formed its boundary toward Austrasia, the eastern division, to the ocean and the Loire, which separated it from Aquitania. The principal towns were Soissons, Paris, Orleans, and Tours. In later times it was restricted to the territories lying between the Seine and the Loire. The name disappeared when the maritime territory was ceded to the Normans, receiving the name of Normandy. (See FRANCE, vol. vii. p. 668.)

NEUTRALITY, in international law, the indifferent and impartial posture maintained by one nation with regard to others which are at war. "The neutral state," says Klüber, "is neither judge nor party." It may be the common friend of both belligerents, but may not favor either. The character of neutrality is generally impressed upon a nation only by the event of war, while in time of peace it may conclude offensive and defensive alliances, and in all respects arrange at its pleasure its relations with other states. Yet there may be what is called a permanent neutrality. By the public law of Europe, Switzerland and Belgium are to remain always neutral and independent of any complications which may in the future arise among the other European powers. These states, it is evident, cannot even in peace enter into any compacts or engagements which would be inconsistent with complete neutrality in case of war.—It is not a violation of neutrality to furnish one only of two hostile parties with ammunition or other war supplies, provided this be done in accordance with previous treaty stipulations. Thus, by the treaty of 1788 with the United States, France secured the exclusive privilege of asylum in American ports for her privateers and their prizes. But in this case, as usually, such a qualification of neutrality, though clearly sanctioned by the law of nations, did not fail to provoke complaint and protest from the less favored power. It is not consistent with a neutral character to concede to one belligerent, to the exclusion of others, the liberty of raising land or sea forces within the neutral territory. This privilege the United States refuse to all belligerents alike, and the prohibition is declared by a permanent act of congress. The subject of foreign enlistments in neutral territory, and the doctrine maintained upon the point by the U. S. government, are clearly set forth in the official opinion of Attorney-General Cushing of Aug. 9, 1855.—The perfect inviolability of its territory is the clearest if not the chief among the rights of a neutral state. A belligerent therefore cannot attack his enemy on neutral ground, and, in spite of a condemnation by a prize court of the captor, the neutral power will restore to its owner property captured within its jurisdiction. The neutral may refuse to all belligerents the privilege of passage over its domain, or must grant it, if at all, to all alike. It may forbid the entrance of war vessels and their prizes into its ports, although, in the absence of positive prohibition, the liberty to enter is implied. Our government has uniformly conceded this favor to the public ships of the hostile powers, without their prizes. To admit the entrance and sale of these in neutral ports is a favor which, in the opinion of eminent authorities, is hardly consistent with perfect neutrality, or with the dictates of true policy. As an illustration of the latest practice in this respect, it may be added, that in the late Russian war, Sweden and Norway and Denmark, adopting the same rules of neutrality, admitted into their ports the ships of war and of commerce of the belligerent parties, and accorded to them the facility of supplying themselves with all necessary stores and provisions not contraband of war, but forbade, except in cases of distress, the entrance, condemnation, or sale of any prize in any of the harbors of these kingdoms.—Whether the neutral can claim this territorial immunity for its ships, whether in other words its flag shall protect the whole ship and cargo from the assertion of belligerent rights, has been a much vexed question in international law. The treaties concluded at Utrecht in 1713 had embodied the principle that the character of the vessel should determine that of its cargo; and though the same principle had been introduced into frequent conventions, based upon these treaties, to which England had been a party, yet this power always refused to admit that express stipulations of this nature could change what it called the common law of nations in the premises. Except, therefore, when it was bound by special compacts, England has steadily maintained the integrity of the rule that enemy's goods on board a neutral ship are good prize of war. In 1781 the Baltic code of neutrality was first proclaimed by Catharine II. of Russia. One of its most prominent articles asserted the principle of the treaties of Utrecht, namely, that free ships should make free goods. The principal powers of Europe, excepting only England, acceded to the Russian rules of neutrality. The single influence of England, however, against the code was too great to be withstood, and it was abandoned in 1787. An attempt to revive it in 1801 was equally unsuccessful, and for the same reason. In its general jurisprudence the United States has, almost of necessity, adopted the English rule. But in its treaties, and particularly in those with American powers, it has generally inserted the more liberal principle that neutral ships shall make free goods. Since 1786 England had generally asserted her belligerent rights, until at the commencement of the Russian war, by a common declaration with her ally France, promulgated in April, 1854, she announced that for the present she "waived her right of seizing enemy property laden on board neutral vessels, unless it were contraband of war." At the conclusion of the war England gave a more formal assent to the principle which she had so long opposed; for the declaration which was signed at the congress of Paris in 1856 by the plenipotentiaries of all the great powers, contained the provision that the neutral flag shall cover enemy goods, with the exception of those contraband of war, and it may be supposed has fixed the maxim in the law of nations. The rule usually coupled with that just referred to, though the two have really no connection, namely, that neutral goods, except contraband, are not liable to capture though laden in enemy ships, is also included in the declaration of the congress of Paris. It was formerly rejected by France, but other nations have generally observed it.—Subject only to slight and reasonable restrictions, the neutral may carry on its commerce with the hostile powers. But plainly it must not furnish either with war supplies, nor indeed with any material which can directly contribute to the prosecution of hostilities. In the familiar phrase of the international law, its ships must not carry contraband. Further, they must neither break blockades, nor carry despatches for either party, nor in any other mode render direct assistance in the war. Finally, neutral ships must be always ready to prove themselves that which they profess to be, and must therefore be provided with papers sufficient to prove their nationality, and must submit to a reasonable exercise of the right of visitation. It is not possible to define contraband specifically, that is, to declare what particular articles will be so regarded in time of war. There can be no doubt, however, respecting things which can be used only in war, or respecting materials which are peculiarly fitted by their nature for warlike uses. On the other hand, things which cannot be employed in war are, it is equally certain, not contraband. But it is difficult to determine the character of articles which are *ancipitis usus*, of a double or indifferent nature, and serviceable as well in peace as in war, such as money, provisions, ships and materials for ships, and naval stores. The decision will always be influenced by many considerations, as by the state and nature of the war, or by the highly probable destination of goods to a military use. Thus provisions, which *prima facie* are not contraband, will certainly be declared so when they are destined to a besieged town or blockaded port. The character of the port to which goods are bound may also be of consequence—whether, that is to say, it be a port of merely naval equipment, or one of general commerce. The changes which science has made in the needs and modes of warfare are also to be regarded, as well as the consideration whether the goods alleged to be contraband are or are not the produce of the country which exports them. Carrying official communications for a belligerent upon the public affairs of his state is a flagrant violation of neutrality. But to carry despatches from the enemy to his ambassador or consul in a neutral country is, generally speaking, no ground for condemnation, for the legal presumption is that the communication has reference to the commercial relations of the belligerent and the neutral. It seems to be the better opinion that the contraband character of the ship or goods terminates with that passage in which the forbidden trade is intended or done, and does not affect the whole voyage. The owner of the contraband loses all, even the innocent goods which he has laden in the ship. Other shippers forfeit nothing. This doctrine of contraband imposes rather necessarily the belligerent's right to search neutral ships for such articles as may contribute to the comfort and strength of the enemy. The law of nations has been in this respect that in time of war search may be made for contraband and for enemy's goods. The late modification of the former practice, by which, as we have already seen, the goods of the enemy in neutral ships are now exempted from seizure, must tend, it would seem, to reduce the application of the law of search to the case of contraband alone. Some powers have defeated or hoped to defeat the right of search for contraband goods by forbidding their subjects to carry them; and sometimes treaties have provided that, in the case of ships under convoy, the declaration of the commander should suffice to exempt the ships in his charge from search.—A further restriction in force on the commerce of the neutral consists in his incapacity to trade to blockaded ports. To constitute a violation of blockade there must be first an actual blockade by a force sufficient to maintain the same; then there must have been proper notification of it; with these must concur some act of violation, either by going in or coming out with a cargo laden after the commencement of the blockade. Sir William Scott once held that a temporary absence of the blockading squadron, from being driven off by a storm or other accident, did not suspend the operation of the blockade. The French publicists controvert this doctrine, as unwarranted by the general principles of international law. But the law as Sir William Scott declared it is probably at present the law of England. The English and French declarations, however, of March, 1854, speak of "effective blockades, which may be established with adequate forces." Some exception has been taken in the United States to the rule which forbids the departure of a vessel laden after the blockade was known. In a communication to Mr. Buchanan, U. S. minister in London, in 1854, Mr. Marcy urges that, having visited the port in the common freedom of trade, the neutral vessel ought to be allowed to depart with a cargo, without regard to the time when it was received on board. This relaxation of the law of blockade will be hardly yet admitted in the general practice of nations; but, especially in our treaties with the Central and South American republics, it has assumed the form of familiar stipulation. The treaty with Guatemala provides, for example, that no vessel of either of the contracting parties which shall have entered into any port or place of one power, before the same was actually besieged, blockaded, or invested by the other, shall be restrained from quitting such place with her cargo, nor, if found therein after the reduction and surrender, shall such vessel or her cargo be liable to confiscation, but shall be restored to the owners thereof.—The principles of the international law of neutrality assume a peculiar significance in the law of marine insurance. In marine policies the ownership of the property is usually the subject of express warranty, and underwriters are thus informed of its liability to or freedom from war risks. The neutrality itself may be sometimes expressly warranted. In these cases the warranty is construed to mean, first, that the ship or cargo is actually owned by citizens of a country not at war when the risk begins, and secondly, that with the property there shall go all those usual documents and precautions which prove the neutrality and protect it from belligerent risks. The bill of sale of the ship, the sea letter or customary certificate of nationality, the register of the vessel, the charter party, shipping papers, the log book, and in general all the documents which usually state the national character, and especially the flag, must conform to the warranted neutrality of the ship. The law holds, too, that if a vessel exhibit only false papers when she is captured, there is a breach of the warranty, though she have on board the proper papers of her nation, and have the right to carry false papers, because she must not only have the proper documents, but must use them at a proper time and in a proper way. Yet it seems that simulated or false papers may not only be carried when leave is expressly given, but when a usage exists to carry them, which is or should be known to the insurer. The warranty of the neutrality of a ship is broken if a belligerent own any part of it. In regard to goods the rule is different, and the warranty is held to extend only to the interest of the insured, and is not broken by the fact that a part of the cargo not insured is not neutral. But when the interest insured covers the whole cargo, the law will regard the real ownership; and therefore property held by a neutral by a legal title indeed, but for the benefit of and in trust for a belligerent, is belligerent property. If neutral goods are shipped in time of peace to a consignee who has not ordered them, so that the property would not vest in him till the goods were received, in case of capture they are considered as the property of the consignor. But if they are shipped by a neutral after the war begins, and under a contract made during peace but in contemplation of war, and to be at the risk of the sendee until delivery, they are put on the same footing as if the contract were made during war. If a subject of a belligerent power ship goods to a neutral which have not been ordered by him, so that the belligerent retains control over them, they are considered as his property. The mere right of the belligerent seller to stop goods *in transitu* on the insolvency of the vendee is not such an interest as would make the goods belligerent. The warranty of neutrality requires such trade, conduct, and course of transaction as shall be in conformity and adaptation to this warranty. Therefore, if the neutral interests or property are indistinguishably mixed up with belligerent interests or property, they become themselves liable to all the incidents and effects of a belligerent character. So resistance of a search when rightfully demanded, an attempt at rescue, seeking belligerent protection or receiving it, are all breaches of the warranty of neutrality, because they belong to the conduct of a belligerent. It is a sufficient compliance with the warranty, that a vessel is neutral according to the law of nations; and for a condemnation for breach of ordinances which are contrary to the law of nations, the underwriters are still liable.

NEUVILLE, HYDE DE. See HYDE DE NEUVILLE.

NEUWIED, a German town, capital of the principality of Wied (formerly Neuwied), now mediatized and attached to Prussia, situated in the district of Coblentz, on the right bank of the Rhine; pop. about 7,000. It is a pleasant and well built town, founded at the beginning of the 18th century. By the liberality of its princes, industrious persons of different religious creeds were attracted to the place, and established there manufactures of woollen and cotton goods and other articles, which have given to it its present prosperity. The palace possesses a collection of Roman antiquities, chiefly from the buried Roman city Victoria discovered near Neuwied in 1791. In the museum of natural history are the Brazilian and North American collections of Prince Maximilian. Neuwied possesses a normal school, and is particularly known abroad by its settlement of Moravians (*Herrnhuter*), who have their church, schools, workshops, &c., in a distinct part of the town.

NEUWIED, or WIED, MAXIMILIAN ALEXANDER PHILIPP, prince of, a German naturalist and traveller, born Sept. 23, 1782. His mother, the countess of Wittgenstein-Berleburg, was a woman of remarkable attainments, and encouraged his love for travel, which led him, after rising to the rank of major-general in the Prussian army, to explore Brazil from 1815 to 1817. The result of his observations is embodied in his *Reise nach Brasilien* (2 vols., Frankfort, 1819–'20), and in his *Abbildungen zur Naturgeschichte Brasiliens* (Weimar, 1823–'31) and *Beiträge zur Naturgeschichte Brasiliens* (4 vols., Weimar, 1824–'33). Subsequently he travelled in the United States, and wrote *Reise durch Nordamerika*, with 81 plates (2 vols., Coblentz, 1838–'43; English version, London, 1843), a work which is as much valued for the beauty of its illustrations as for its contributions to American ethnography. He is the uncle of the present Prince Wilhelm Hermann of Wied.

NEVA, a river of Russia, flowing from the S. W. extremity of Lake Ladoga, first S. W., then N. W., and ultimately through the city of St. Petersburg, discharging itself by many mouths into the gulf of Finland. Its entire course is not more than 40 m., but it is very wide, has an average depth of from 2 to 3 fathoms, and is of great commercial importance. It is liable, particularly at the breaking up of the ice in April, to sudden inundations, often most disastrous to St. Petersburg, which is built on the islands formed by its branches.

NEVADA, a N. E. co. of Cal., bordering on Utah, and drained by Middle and South Yuba rivers; area estimated at 1,000 sq. m.; pop. in 1852, 21,365. The surface is generally mountainous, especially toward the E., which is traversed by the Sierra Nevada range. One half of the entire area is estimated to be occupied by mineral lands. Mining is the principal industry, and agriculture receives little attention. The county contains several of the richest and most productive quartz leads in the state, and the placer diggings are not surpassed by any other. The number of quartz mills in operation in 1858 was 82, of which 21 were propelled by steam; number of arastras 36; cost of machinery $500,000. The agricultural products in the same year were 112,000 bushels of wheat, 260,000 of barley, and 56,000 of oats. There were 3 grist mills, 42 saw mills, 2 founderies, 3 tanneries, and 7 breweries. Value of taxable property, $4,801,998. Capital, Nevada.

NEVERS, a town of France, capital of the department of Nièvre, on the right bank of the Loire, 188 m. by railway S. E. from Paris; pop. in 1856, 16,082. Anchors, machinery, &c., are manufactured. Cæsar mentions the town in his "Commentaries" under the name of Noviodunum. In the middle ages it was the capital of a duchy, the last duke of which sold it to the crown of France in 1665.

NEVIN, JOHN WILLIAMSON, D.D., an American theologian, born in Franklin co., Penn., Feb. 20, 1803. He was graduated at Union college, New York, in 1821, studied theology for three years in the theological seminary at Princeton, N. J., and continued there two years afterward as assistant teacher in the place of Professor Hodge, then absent in Europe. During this time he wrote "Biblical Antiquities" (2 vols., 1828). He was licensed to preach by the presbytery of Carlisle in 1828. Toward the close of 1829 he was called to the western theological seminary of the Presbyterian church in Alleghany City, where he continued as assistant teacher, and afterward as professor of Hebrew and biblical literature, for 10 years; and in the meanwhile he was ordained. He also edited in 1833 and 1834 "The Friend," a weekly literary journal published under the auspices of the young men's society of Pittsburg and its vicinity. In 1840 he removed to Mercersburg, Penn., in obedience to a call from the synod of the German Reformed church inviting him to take charge of its theological seminary, in connection with Dr. F. A. Rauch, who was at the same time president of Marshall college in the same place. The death of Dr. Rauch, March 2, 1841, left him the sole charge of the theological seminary, and the presidency of the college, till 1844, when Dr. Philip Schaff was called as his colleague in the seminary. In 1843 he published "The Anxious Bench," which calls in question the propriety of certain means and measures then extensively employed in the service of religious revivals. This work furnished occasion for much controversy. It was enlarged in a subsequent edition, and also translated into German. The same year he published a translation of Dr. Schaff's "Principle of Protestantism," with an introduction, and a sermon on "Catholic Unity." In 1846 he published "The Mystical Presence," a vindication of the reformed doctrine of the holy eucharist; in 1847, the "History and Genius of the Heidelberg Catechism;" in 1848, "Antichrist, or the Spirit of Sect and Schism." From Jan. 1849, to Jan. 1853, he edited the "Mercersburg Review," published by the alumni association of Marshall college, which is still continued, and to which he has been up to this time (1860) a prominent contributor. At the close of 1851 he resigned his situation as professor in the theological seminary, continuing to act as president of Marshall college until its union with Franklin college at Lancaster, Penn., in 1853, and its consequent removal to that place. He was offered the presidency of the college in its new form, but declined it. He now lives in literary retirement near Lancaster.—It was during Dr. Nevin's connection with the theological and literary institutions at Mercersburg and the "Mercersburg Review," that the movement began and was carried forward which has developed itself into what is called the "Mercersburg system of theology." Of this movement Dr. Nevin was the originator and exponent. It seemed to grow into shape without calculation or plan. It owes its existence properly not to any spirit of philosophical speculation, as has been sometimes imagined, but to an active interest in practical Christianity. Historically it may be regarded as having commenced with the publication of "The Anxious Bench" in 1843. Then came the sermon on "Church Unity," preached by Dr. Nevin at the opening of the triennial convention of the Reformed Dutch and German Reformed churches at Harrisburg, Penn., in 1844; a discourse sanctioned by the official representatives of both churches at the time, the positions of which, however, on the subject of the mystical union and in opposition to the sect system, were felt by many afterward to involve a dangerous tendency. Dr. Schaff's "Principle of Protestantism" brought out the tendency, in the apprehension of such persons, under still more alarming proportions. This was followed by the "Mystical Presence," with a translation of Dr. Ullmann's masterly tract on "The Distinctive Character of Christianity," prefixed in the form of a preliminary essay. The work was a vindication at large of the old Calvinistic doctrine of the Lord's supper, conveying against the general Protestantism of the time a charge of wholesale defection from the Protestant sacramental faith of the 16th century. The tract "Antichrist" was an assault upon the sect system, as being in full antagonism to the true idea of the church, and such a heresy as draws after it virtually in the end a Gnostic denial of the proper mystery of the incarnation itself. As the occasions of theological discussion were thus multiplied, it was felt necessary to establish a special organ for carrying it forward; and thus originated the "Mercersburg Review," the pages of which for some years form a sort of progressive picture of the system to whose exposition and defence it has been devoted from the first.—The cardinal principle of the Mercersburg system is the fact of the incarnation. This, viewed not as a doctrine or speculation, but as a real transaction of God in the world, is regarded as being necessarily itself the sphere of Christianity, the sum and substance of the whole Christian redemption. Christ saves the world, not ultimately by what he teaches, or by what he does, but by what he is in the constitution of his person. His person in its relations to the world carries in it the power of victory over sin, death, and hell, the force thus of a real atonement or reconciliation between God and man, the triumph of a glorious resurrection from the dead, and all the consequences for faith which are attributed to this in the Apostles' Creed. In the most literal sense accordingly Christ is here held to be "the way, the truth, and the life," "the resurrection and the life," the principle of "life and immortality," the "light" of the world, its "righteousness," and its "peace." The "grace which bringeth salvation," in this view, is of course always a real effluence from the new order of existence, which has thus been called into being by the exaltation of the Word made flesh at the right hand of God. It must be supernatural as well as natural, and the organs and agencies by which it works must in the nature of the case carry with them objectively something of the same character and force. In this way the church is an object of faith; the presence of a new creation in the old world of nature; the body of Christ, through which as a medium and organ he reveals himself and works till the end of time. It mediates with supernatural office instrumentally between Christ and his people. Its ministers hold a divine power from him by apostolic succession. Its sacraments are not signs merely, but seals of the grace they represent. Baptism is for the remission of sins. The eucharist includes the real presence of Christ's whole glorified life, in a mystery, by the power of the Holy Ghost. The idea of the church, when it is thus held as an object of faith, involves necessarily the attributes which were always ascribed to it in the beginning, unity, sanctity, catholicity, and apostolicity. The spirit of sect, as it cleaves to Protestantism at the present time, is a very great evil, which is of itself sufficient to show that if Protestantism had any historical justification in the beginning, its mission thus far has been only half fulfilled, and that it can be rationally approved only as it is taken to be an intermediate preparation for some higher and better form of Christianity hereafter. The distinguishing character of the Mercersburg theology, in one word, is its Christological interest, its way of looking at all things through the person of the crucified and risen Saviour. This, as the world now stands, embraces necessarily all that enters into the conception of the church question, which this system holds to be the great problem for the Christianity of the present time.

NEVIS, an island of the British West Indies, in the Leeward group, 2 m. from the S. E. extremity of St. Christopher, in lat. 17° 14′ N., long. 63° 3′ W.; area, 20 sq. m.; pop. 10,200. With the exception of a narrow circle of fertile land bordering upon the coast, the whole island may be said to consist of a single mountain 2,500 feet high, the upper parts of which are not susceptible of cultivation. The arable lands, comprising in all only 6,000 acres, are well cultivated. Sugar is the staple, and with molasses and rum forms the bulk of the exports. The exports in 1855 amounted to £38,977, and the imports to £19,728. The island is subject to a lieutenant-governor, who is assisted by an executive council and a house of assembly. Charlestown, on the S. W. coast, is the capital and principal town, and has a good roadstead. Nevis was colonized by English emigrants from St. Christopher in 1628, was taken by the French in 1706, and restored by the peace of Utrecht, and was taken by them again in 1782, but restored by the peace of 1783. It was the birthplace of Alexander Hamilton.

NEW ALBANY, a city and the capital of Floyd co., Ind., on the Ohio river opposite Portland, Ky., 1 m. below the falls, 3 m. below Louisville, 136 m. below Cincinnati, and 110 m. S. by E. from Indianapolis; pop. in 1860, 15,000. It is built on an elevated bank which is seldom reached by the overflow. It is well laid out, with wide paved streets, the whole length of which, with lanes and alleys, amounts to 22 miles, is supplied with good water, and lighted with gas. There are commodious wharfs capable of accommodating the largest steamers, and the shipping business is constantly increasing. Steamboat building is an important branch of industry, and there are now 5 ship yards and 3 large founderies in operation. The city contains a number of wholesale establishments in various departments of merchandise, and has an active trade. There are 22 churches, viz.: 2 Baptist, 1 Christian, 1 Disciples', 1 Episcopal, 1 Lutheran, 8 Methodist, 4 Presbyterian, 2 Roman Catholic, 1 United Brethren, and 1 Universalist. The public school system is very efficient and thorough, and occupies for its various departments 5 school buildings. The city has a number of private educational institutions, and is the seat of the Indiana Asbury college and the New Albany collegiate institute. It is a terminus of the Louisville, New Albany, and Chicago railroad.

NEW BEDFORD, a city and port of entry, and one of the capitals of Bristol co., Mass., on Buzzard's bay, in lat. 41° 38′ N., long. 70° 55′ W., 55 m. S. E. from Boston; pop. in 1860, 22,524. The municipal limits include an area about 11 m. in length by 2 in width; the city proper, built along the W. side of the Accushnet river, is about 2 m. in length by 1 in width. The principal business is the whale fishery, which was pursued here as early as 1755. In 1765, 4 vessels were engaged in it, and at the revolution from 50 to 60, most of which were captured during the war. The business subsequently revived, but was again prostrated by the war of 1812; and it was not until 1818 that the impulse was given which has resulted in making New Bedford the centre of the whale fishery in the United States. The number of vessels in the district employed in the fisheries and foreign and domestic trade on Jan. 1, 1860, was 547, measuring 151,473 tons. Of this number 399 vessels (being 70 per cent. of the whole number in the United States engaged in this business), measuring 129,576 tons, were employed in the whale fishery, 301 of which, measuring 103,564 tons, belonged to the port of New Bedford. The imports of the products of the whale fishery into the district in 1859, and their value, were as follows: 2,236,4[illegible] galls. sperm oil, value $2,875,468; 4,715,[illegible] galls. whale oil, $2,046,553; 2,010,882 lbs. whalebone, $1,290,119; value of other marine productions, $16,807. The other imports amounted to $127,501; exports, $58,457; amount of duties collected, $11,126; number of entries, 282; of clearances, 178. There are numerous manufacturing establishments, of which the principal are the Wamsutta cotton mills, established in 1846, with a capital of $600,000, running 81,500 spindles, employing 550 hands, and manufacturing in 1859 $544,7[illegible] worth of goods; the New Bedford gas light company, incorporated in 1850; the Gosnold mills for the manufacture of hoop iron; 13 oil and candle works, 4 soap factories, 2 flouring mills, a cordage factory, an iron foundery, and manufactories of screws, rivets, paper hangings, Prussian blue, and kerosene oil. There are 4 banks, with an aggregate capital of $2,400,000; 2 savings banks, with deposits in 1859 to the amount of $2,438,567; 1 fire and 4 marine insurance companies, 2 daily and 3 weekly newspapers, and a weekly shipping list. There are 24 churches, viz.: 4 Baptist, 4 Christian, 5 Congregational, 1 Episcopal, 2 Friends', 6 Methodist, 1 Roman Catholic, and 1 Universalist. Among the charitable institutions are a port society, which supports a Bethel for seamen; a domestic missionary society, maintaining 4 free chapels; and an orphans' home with about 80 inmates. There are 3 public cemeteries, and provision has been made for a 4th. The New Bedford social library was established in 1808. In 1852 it was merged in a free public library, maintained by the city. In 1857 a handsome library building, costing $45,000, was completed. The library now (1860) contains 12,5[illegible] volumes. A lyceum was established in 18[illegible], which is still in a flourishing condition. There are 41 public and several excellent private schools, among which is the Friends' academy, established in 1810. The principal public buildings are the city hall, a handsome Ionic structure, which cost $60,000, the Unitarian and the north Congregational churches, the custom house, an almshouse capable of accommodating 400 inmates, the public library, and the house of correction. Most of these are built of native granite. New Bedford is also noted for the elegance of its private residences. The national government is constructing an extensive fortification on Clarke's point at the S. end of the city. A bridge over 4,000 feet long connects New Bedford and Fairhaven. Two lines of screw steamers run to New York, and a steamer to Martha's Vineyard and Nantucket. Communication is had with Boston by two railroads, the New Bedford and Taunton, and the Fairhaven branch. The valuation of real estate in 1859 was $9,718,600, and of personal property $15,905,000, making it the wealthiest community in the United States in proportion to the number of inhabitants.—New Bedford was set off from the town of Dartmouth in 1787, and received a city charter in 1847.

NEW BRITAIN, a post borough and township of Hartford co., Conn., 10 m. S. from Hartford, on the Providence and Fishkill railroad; pop. in 1860 about 5,000. It was set off from the town of Berlin in 1850, and has since grown with great rapidity. Among its manufactures, which are very numerous and of great variety, there are extensive establishments for the making of stockinet goods, bank and safe locks, jewelry, hooks and eyes, cabinet hardware, harness trimmings, rules, plumbs and levels, and one for the manufacture of locks, house trimmings, and general hardware, which is the largest and most complete establishment of the kind in the United States. The borough contains 6 churches (1 Baptist, 2 Congregational, 1 Episcopal, 1 Methodist, and 1 Roman Catholic), and the state normal school. (See CONNECTICUT, vol. v. p. 618.) It is lighted with gas, and an ample supply of water is obtained from a reservoir of 175 acres, at an elevation of 200 feet, giving a head sufficient for all fire purposes, entirely superseding the use of fire engines, and throwing a jet from the fountain on the public square to the height of 140 feet. The entire cost of the water works was $50,000. The valuation of the town for purposes of taxation is upward of $2,000,000.

NEW BRITAIN, the name of one large and several smaller islands in the Pacific ocean, between lat. 4° and 6° 30′ S., and long. 148° and 152° 30′ E.; extreme length of the large island about 300 m., breadth from 5 to 50 m.; area estimated at 12,000 sq. m. It is of crescent shape, and is separated on the W. from New Guinea by Dampier's strait, and on the E. from New Ireland by St. George's channel, the former being about 50 and the latter 25 m. wide. There are several fine bays and harbors, and at Spacious bay, the E. headland of which is in lat. 5° 2′ S., long. 152° 7′ E., there is supposed to be a channel extending across the island. In the interior there are high mountains, and in the N. active volcanoes. Bordering the coast are extensive fertile plains, and much of the surface is covered with forests. The principal productions are palms, sugar cane, breadfruit, pigs, turtles, and fish. The inhabitants are a tribe of oriental negroes or negrillos, well made, and of very dark complexion.

NEW BRUNSWICK, a city and the capital of Middlesex co., N. J., situated at the head of navigation on the S. W. bank of the Raritan river, about 15 m. from its mouth, 30 m. from New York by the New Jersey railroad, and at the terminus of the Delaware and Raritan canal; pop. in 1860, 11,287, including 3 slaves. The oldest parts of the town are built on low land, but a large and by far the pleasantest portion is upon the high and sloping ground which, in the form of a crescent, half encircles the original location. It is largely engaged in manufactures, having about 20 extensive establishments, which employ 1,400 hands and a capital of $1,255,000, and whose annual products amount to about $1,800,000. Among them are 4 factories of India rubber goods, 3 of paper hangings, 1 of printed cottons, 1 of leather, 1 of alcohol, and 1 of gas and coal tar. There are beside these 4 machine shops, 3 founderies, 2 sash and blind factories, and several smaller establishments. There are 2 banks with an aggregate capital of $550,000, 2 fire insurance companies, and 3 building loan associations. Traffic is maintained by means of a daily steamboat line to New York, by the Delaware and Raritan canal to Philadelphia and intermediate places, and by the New Jersey and the Camden and Amboy railroads. A number of coasting vessels, engaged mostly in the transportation of coal, are owned here. There are 16 churches, viz.: 2 Baptist, 2 Episcopal, 1 Jewish, 3 Methodist, 2 Presbyterian, 3 Reformed Dutch, 1 Roman Catholic, and 2 union.—Rutgers college occupies an elevated and beautiful situation in the N. part of the city. Its buildings are the college edifice, built of freestone in 1809, and Van Nest hall, a brick building erected in 1847. The former contains recitation rooms, a philosophical room, library, and chapel; and the latter rooms for the literary societies, the cabinet of natural history, and the chemical laboratory. The faculty consists of a president and 9 professors. The number of students in attendance (Nov. 1860) is 120. It was established by friends and adherents of the Reformed Dutch church in North America, and was chartered under the name of Queen's college in 1770. The name was changed to Rutgers in 1825. It has always been under the patronage of the synod of the Reformed Dutch church, but it is open to all. Its professorships are partially endowed. Its libraries contain about 12,000 volumes. The philosophical and chemical apparatus and the collections in natural history are respectable and constantly improving. Students lodge and board in private families under the supervision of the faculty, though rooms are provided in Hertzog hall for those who have the ministry in view. The affairs of the college are controlled by a board of trustees. The theological seminary of the Reformed Dutch church, established here in 1810, occupies a commanding position N. of the college. It has a spacious building, called Hertzog hall, which contains recitation rooms, a library, a chapel, and rooms for 106 students. There are 3 professors and 60 students. Among the other educational institutions are the grammar school of Rutgers college, 2 private classical schools for boys, a seminary for young ladies, a free Lancasterian school supported by an endowment, and a public school sustained by tax. There are 1,750 white and 70 colored children in the free schools, and 240 in private schools. The amount expended in 1859 in supporting the public school was $10,069. The periodical press comprises 2 daily and 8 weekly newspapers, and the Rutgers college quarterly.—New Brunswick was settled about the close of the 17th century by emigrants from Long island, and was incorporated as a town in 1736. During the revolutionary war it was at different times the head-quarters of each of the opposing armies, and remains of their works are still to be seen in the vicinity. The city was incorporated in 1784. In 1835 it suffered severely from a tornado.

NEW BRUNSWICK, a British colony in North America, bounded N. by the river Restigouche and the bay of Chaleur, which separate it from Lower Canada, E. by the gulf of St. Lawrence, S. by Nova Scotia and the bay of Fundy, and W. by the state of Maine. It lies between lat. 45° and 48° 5′ N., and long. 63° 50′ and 67° 53′ W.; length from N. to S. 180 m., breadth 150 m.; area, 27,620 sq. m.; pop. in 1851, 193,800, including 1,058 colored and 1,116 Indians. The number of immigrants in 1851 was 3,470. The province is divided into 14 counties, and 61,273 acres of land have been assigned to the Indians. The capital is Fredericton, in the county of York, on the St. John, 80 m. from the bay of Fundy; and the principal commercial town is St. John, at the mouth of St. John river on the same bay.—The coast line of New Brunswick is about 500 m. in length, interrupted only at the point of junction with Nova Scotia, where an isthmus of not more than 14 m. in breadth connects the two territories, and separates the waters of Northumberland strait from those of the bay of Fundy. The principal bays and harbors are Bathurst bay on the N. coast, Miramichi bay on the E., and Passamaquoddy bay and St. John harbor on the S. There are numerous smaller harbors, more particularly on the S. portion of the E. coast. There are many rivers, streams, and lakes in the province, and from some parts of the interior a canoe can be floated either to the bay of Chaleur, the gulf of St. Lawrence, or the bay of Fundy. The largest river is the St. John, or Looshtook, which has its source in a lake of the same name in Maine, and in its upper course forms part of the boundary between Maine and Canada. After entering New Brunswick, it first flows S. and then S. E., and falls into the bay of Fundy at St. John, after a course of 450 m. The principal tributary of the St. John in New Brunswick is the Tobique. The Miramichi crosses the central part of the province in a N. E. direction, and falls into the bay of the same name in the gulf of St. Lawrence, and is navigated by large ships for 25 m. The Restigouche, which divides New Brunswick from Canada, is formed by 5 main branches, and falls into the bay of Chaleur after a course of 200 m. The Nepisiguit, 100 m. long, which flows through the N. E. part of the province, also falls into the bay of Chaleur. The Petitcodiac falls into the N. part of the bay of Fundy, and is navigable 25 m. for vessels of large size. In the N. part of the province there are many lakes, but none of any considerable size; in the S. there are a few somewhat larger, the most important of which are Grand lake, 20 m. long and about 5 m. broad, and Washademoak lake, about 20 m. long and 2 m. broad, both lying between St. John and Fredericton.—New Brunswick cannot be considered mountainous, but the N. and N. W. parts partake more of this nature than any other portion of the province. A branch of the Appalachian mountains enters the N. W. of the province from Maine, and runs across to the bay of Chaleur. The mountains are of no great height, and some are entirely clothed with wood. The scenery of this district is very beautiful. Large tracts of flat alluvial soil lie along the numerous rivers that intersect the country. The surface of the S. part is much broken and diversified with rocks and ravines, and the whole coast of this region is bold and rocky. East of the St. John the soil is deep and fertile, and covered with tall and dense forests. To the W. of that river the land is rather poorer, but there are many watered valleys covered with forests interspersed with corn fields. For nearly 20 m. inland along the shore of the gulf of St. Lawrence the country is flat and fertile; but in the interior it rises into gently sloping hills, which extend westward as far as the St. John. The geology of the interior is not minutely known, but the formation of the parts that have been inspected presents no remarkable features. Several salt springs are found, and some of the strata are very rich in fossil remains, which are remarkable in many cases for the distinctness with which they have been preserved. Iron ore is abundant, and copper has been found on the banks of the Nepisiguit, and plumbago near St. John. There is a coal field in the central counties, which covers an area of about 10,000 sq. m.—The climate is remarkably healthful. The S. part is considerably milder than the N., but the whole country is covered with snow for about 4 months in the year. At Fredericton the temperature ranges from 35° below zero to 95° above, and the mean is about 42°. The coldest part of the winter is between December and March, and the most snow falls in February. About the middle of March the S. winds set in, and soon afterward the ice breaks up on the rivers and lakes. The spring is generally cold and rainy, but in summer the weather is commonly dry. The S. W. wind is warm and agreeable, except on the shores of the bay of Fundy, where its vapor is condensed in thick fogs which prevail during the summer; but these fogs do not extend more than 15 or [illegible] m. into the interior. The shifting of the winds produces a great change of temperature in New Brunswick, which has been known to rise or fall 60° in 24 hours. The clearing of the forests has already greatly mitigated the severity of the winters, and shortened their duration, for the shade afforded by the woods protects the snow from the effects of the sun. During the autumn, and especially in the time called the Indian summer, the weather is particularly agreeable.—The chief vegetable production of New Brunswick is timber, of which there is the usual variety found in North American forests; but the pine is the principal kind exported. Indian corn is grown in the S. parts of the province; flax, wheat, and other cereals, and good potatoes, are raised. Much of the land, including the extensive marshes which have been reclaimed from the sea, offers extraordinary advantages for breeding and feeding cattle, and for the establishment of dairies upon an extensive scale. The wild animals are bears, moose deer, foxes, wild cats, raccoons, beavers, otters, and porcupines. The rivers and lakes abound in salmon, trout, chub, eels, and perch; and cod, mackerel, and herring are abundant on the coast.—The chief part of the inhabitants are British settlers and their descendants. There are a few of French stock, who are principally settled on the bay of Chaleur; and there are some Micmac and Melicete Indians, the former in the N. part of the province, and the latter in the valley of the St. John. The people of New Brunswick are mostly employed in agriculture, in the fisheries, in cutting timber in the woods and preparing it for exportation, and in ship building. The principal seats of the fisheries are the harbor of St. John and the islands at the mouth of the bay of Fundy, the whole of its shores on the gulf of St. Lawrence, and in the bay of Chaleur; and cod, haddock, herring, and mackerel are the fish chiefly caught. The timber is felled and hauled over the snow to the rivers, down which it is floated to the saw mills, of which there are many in the province. Of the 17,677,360 acres constituting the area of New Brunswick, about 12,000,000 acres are capable of profitable cultivation, and much of the remainder might easily be reclaimed. About 5,000,000 acres have already been granted to settlers, and 11,000,000 are yet in the hands of the government of the colony. Of these ungranted lands $\frac{9}{10}$ lie to the E. of the St. John. The land under cultivation in 1854 was 643,954 acres. The chief crops in 1855 were 206,635 bushels of wheat, 1,411,164 of oats, and nearly 3,000,000 of potatoes. There were 22,044 horses, 106,268 horned cattle, 168,039 sheep, and 47,932 swine. In different parts of the country, wheat, barley, and peas have yielded 40 bushels per acre; oats, 60 bushels; Indian corn and buckwheat, 65 bushels; carrots and mangel wurzel, 30 tons; turnips, 1,000 bushels; and potatoes, 500 bushels. Ship building is extensively carried on, and many of the vessels constructed are of very good models and fast sailers. They are built principally on speculation, loaded with timber, and sent to find a market in England. The number built in the province in 1854 was 135, and their tonnage 99,426; in 1855 the number was 95, and their tonnage 54,561. The number of vessels belonging to the port of St. John in 1855 was 866, tonnage 138,292. The number of entrances in 1856 was 3,700, tonnage 625,367; clearances 3,745, tonnage 100,886. The trade of New Brunswick has benefited very considerably by the reciprocity treaty between British America and the United States, which has opened a ready market for the produce of the province and the coast. During the year 1857–'8, 218 American vessels entered St. John from various ports, principally in the United States, and the same number cleared. The value of their import cargoes is officially stated at $201,511, and that of their export at $446,712; but a considerable portion of the latter was conveyed to Europe and other parts of the world. In 1855 the total value of the imports was £1,431,330, and of exports £826,381 (against £2,068,173 and £1,104,215 in 1854); the latter of course not including the amount realized upon vessels sent out of the country for sale. The number of saw and grist mills in the province in 1851 was 845, employing 4,668 hands. There were also 125 tanneries, 11 founderies, 52 weaving and carding establishments, 8 breweries, and 94 other factories.—Considerable attention is paid to education. At Fredericton there is a university, founded in 1828, in connection with the civil and ecclesiastical government of the province. It has an endowment of 6,000 acres of land near the capital, and receives £1,000 a year from the crown and the same amount from the colonial government. There is a Methodist and also a Baptist college; and grammar and parish schools have been established in every county. The parish schoolmasters are paid sums varying from £18 to £40 per annum. The whole number of school houses in 1851 was 798. There is a marine hospital, a lazaretto, and a lunatic asylum. The amount of money expended in 1854 for educational and charitable purposes was £17,269. None of the religious denominations in New Brunswick are supported by the government. The lieutenant-governor of New Brunswick (in 1860, the Hon. Manners Sutton) has a salary of £3,000. He is assisted by an executive council of 8, a legislative council, and a representative house of assembly. In 1855 the public revenue amounted to £93,916, and the expenditures to £138,353. The British exchequer contributed in 1857 £9,430 to the expenditures of the province. The military force of New Brunswick consists of a regiment of yeomanry cavalry, 8 troops of cavalry, a regiment of artillery, and 18 regiments of infantry, numbering in all 27,200 rank and file.—New Brunswick and Nova Scotia originally formed one French colony, called Acadia or New France. The aboriginal inhabitants consisted of several tribes of Indians, but there are now only two tribes left. They wander about the country in small parties, but assemble annually to arrange their fishing and hunting, and affairs concerning their general welfare. The country was first settled by the French in 1639, and by the treaty of Utrecht was ceded to the English in 1713. In 1764 it was first settled by British colonists; in 1784 it was separated from Nova Scotia and formed into a distinct province. When the United States gained their independence many of the British adherents emigrated to New Brunswick, and their descendants now form a considerable portion of the population.

NEW CALABAR. See CALABAR.

NEW CALEDONIA (called *Balade* by the natives), an island of Australasia belonging to France, in the S. Pacific, between lat. 20° and 22° 30′ S., and long. 164° 5′ and 167° E.; length from N. W. to S. E. about 200 m., breadth 30 m.; pop. estimated at 60,000. It is surrounded by dangerous rocks, sand banks, and coral reefs, and is accessible by only two channels, one of which, between the S. end and Botany island, was discovered in 1849 by Capt. Woodin, whose name it bears. It has several bays where ships may anchor near the shore, beside which there are secure harbors at Port Balade on the N. E. part of the island and Port St. Vincent on the S. W. The interior is occupied principally by barren mountains, rising in some places to a height of 8,000 feet, and abounding in granite, quartz, mica, steatite, and green amphibole. Coal and iron are found among these hills, and indications of gold have recently been discovered. A few fertile valleys are interspersed, in which grow the cocoanut, banana, taro, mango, breadfruit, and yam. Vegetation in such spots is luxuriant. The sugar cane and vine grow wild, and the former is of excellent quality and to some extent cultivated. There are many large and well watered plains which afford excellent pasturage, and forests of sandal wood extend from the coasts 10 or 12 m. into the interior. Tripang is fished in the surrounding waters. The natives resemble the Papuan or negrillo race, and speak a language kindred with the Australian tongues. They belong to different tribes, some of which are described as hospitable and honest, while others are cruel and treacherous cannibals. They are well formed, tall, robust, and active. Their skin is deep black, and their hair coarse and bushy. They are fond of painting and tattooing their bodies, which are encumbered by few garments, and those of the simplest and scantiest description. Their huts, built of spars and reeds, thatched with dried grass, and entered by a very small opening, bear some resemblance to bee-hives. The chief articles of food are yams and fish.—New Caledonia was discovered by Capt. Cook in 1774, and visited by D'Entrecasteaux in 1792. A settlement of Europeans at Balade was attacked by the natives in 1849, and several of the settlers were killed. The same year the captain and cook of the ship Mary were killed and eaten. The French took possession of the island in Sept. 1853, and established on it a station for their Pacific squadron. They have since been repeatedly at war with the islanders, but hostilities were closed in 1857, when the most troublesome chief was made prisoner. The French colonists have not been uniformly successful, many of them having fallen victims to the ferocity of the natives. The French missionaries, however, have made several prosperous settlements, and cultivate plantations. They have introduced a variety of vegetables and fruits, including wheat and barley, and have been very successful in raising live stock. Great numbers of the islanders have embraced Christianity. They are found to be industrious and averse to drunkenness. The French governor, who resides at Port de France, which was founded in 1854, has authority over all the French possessions in the Pacific.

NEW CASTLE, a N. co. of Del., bordering on Penn., bounded E. by Delaware river and bay, which separate it from New Jersey, and drained by Brandywine, Christiana, and other creeks; area about 500 sq. m.; pop. in 1860, 54,858, of whom 254 were slaves. It has a diversified surface and fertile soil. The productions in 1850 were 1,066,377 bushels of Indian corn, 319,012 of wheat, 483,987 of oats, 121,646 of potatoes, 24,417 tons of hay, 766,803 lbs. of butter, and 14,372 of wool. There were 12 cotton and 4 woollen factories, 4 iron founderies, 2 forges, 7 machine shops, 24 grist mills, 8 paper, 3 powder, and 9 saw mills, 5 ship yards, 5 tanneries, 78 churches, 2 colleges, 8 newspaper offices, and 4,258 pupils attending public schools. It is intersected by the Philadelphia, Wilmington, and Baltimore, the Frenchtown and New Castle, and the Delaware, New Castle, and Wilmington railroads.—NEW CASTLE, the capital, is situated on the Delaware river, 5 m. S. from Wilmington, 42 N. from Dover, and 32 S. W. from Philadelphia; pop. in 1860, 3,468. It contained in 1850 a bank, a public library, an arsenal, and 5 churches, viz.: 1 Episcopal, 2 Methodist, 1 Presbyterian, and 1 Roman Catholic. New Castle has also a large manufactory of locomotives and other machinery.

NEW ENGLAND, the north-eastern portion of the United States, comprising the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. It extends from lat. 41° to 48° N., and from long. 67° to 74° W., with an aggregate area of 65,000 sq. m. It has a coast line of about 700 m., without allowing for the smaller inlets, and constitutes a large part of the great peninsula which, including Nova Scotia, New Brunswick, and parts of Lower Canada, is formed by the Atlantic ocean, the St. Lawrence, and the connected waters of Lakes Champlain and George and the river Hudson—an interesting feature in the topography of the continent fully described in the opening chapter of Palfrey's "History of New England." It was originally granted for colonization by James I. in 1606 to the Plymouth company under the name of North Virginia, and received its present name from Capt. John Smith, who in 1614 explored and made a map of the coast.—For the details of the geography and history of New England, see the states respectively of which it is composed.

NEW GRANADA (called also *La Confederacion Granadina*), a republic of South America, occupying the N. W. corner of that continent, between lat. 3° 35′ S. and 12° 30′ N., and long. 65° 50′ and 83° 5′ W. It is bounded N. by the Caribbean sea, N. E. and E. by Venezuela, S. E. and S. by Brazil and Ecuador, and W. by the Pacific ocean and Costa Rica. It derives its name from the resemblance between the plain of Bogota, its capital, and that surrounding the city of Granada in Spain. Its geographical position is both remarkable and interesting. It lies between the Pacific ocean and Caribbean sea on one side, and the two great rivers the Orinoco and the Amazon on the other, and comprehends the isthmuses of Chiriqui, Panama, Darien, and Atrato, all of which have been indicated as available for interoceanic communication, and over one of which the greater part of the trade and travel between the seas now passes. Its population includes 1,500,000 whites, more than one half of the total, which is a larger proportion than is found in any other Spanish American state. It is divided into 8 departments or states, as follows:

States.	Area in sq. m.	Pop. in 1850.	Capitals.	Population.
Antioquia.......	19,890	244,242	Medellin.......	19,000
Bolivar..........	20,520	182,157	Carthagena....	10,000
Boyaca..........	20,700	379,682	Tunja..........	8,000
Cauca...........	171,000	330,331	Popayan.......	7,500
Cundinamarca..	54,000	517,648	Bogota.........	60,000
Magdalena.....	16,740	73,093	Santa Marta...	5,000
Panama.........	17,550	138,308	Panama........	9,000
Santander.......	12,600	378,376	Bucaramanga..	12,000
Total...	333,000	2,243,837		

The capital is Bogota, or Santa Fé de Bogota, which is also the capital of the state of Cundinamarca.—Among the 40 bays and ports of the republic on both oceans, the most important, commercially, beside the free ports of Panama and Colon (Aspinwall), are Carthagena, Santa Marta, Sabanilla, and Rio Hacha on the Atlantic, and Buenaventura and Tumaco on the Pacific. Chiriqui lagoon and Porto Bello on the Atlantic are also fine ports; beside which, on the Pacific, may be mentioned Humboldt harbor, Cupica, and San Juan or Charambira. The first named has been proposed by Mr. Kelley, and the second by Humboldt, as proper termini for interoceanic canals by way of the rivers Truando and Napipi, which are affluents of the river Atrato, flowing into the Atlantic. San Juan was once connected with the upper waters of the Atrato by a small canal, constructed by a priest in 1788, and called the canal of Raspadura.—The natural configuration of New Granada is peculiar. The Cordillera of the Andes, from the point where it enters the country from the S., forming the plateau of Pasto and Tuquerres, elevated 14,000 feet above the sea, opens out like a fan, or rather like an extended hand, in three great ranges, called the eastern, central, and western, between which are the two large and beautiful valleys of Cauca and Magdalena, differing in altitude and climate, leaving on the W. the valley of the Atrato, and on the E. the valleys of the tributaries of the Orinoco and Amazon. From the Paramo de las Papas, one of the most remarkable summits of the world, descend, in different directions, the rivers Caqueta falling into the Amazon, the Guachicono into the Pacific, and the Magdalena and Cauca, both starting from the same lake, but separated for a while in their course by majestic mountains (among others, those of Tolima, 18,300 feet high), and finally uniting and falling into the Caribbean sea. The E. branch of the Cordilleras is much the greatest in extent; it forms what may be called the heart of the republic, and consists of a series of great table-lands or plateaux, from 8,000 to 14,000 feet in elevation, cool and salubrious, where the Caucasian race flourishes in all its strength, to the exclusion of the African, who naturally seek the hot valleys of the coast. In this plateau, which extends from Bogota to near Venezuela, the ancient Chibchas had their seat. It produces in greatest profusion the fruits and grains of the temperate zone, and contains more than one third of the population of the republic, which in some parts is concentrated to the number of 2,600 inhabitants to the square league. The great rivers Negro, Caqueta, and Putumayo connect the E. and S. E. of the republic with the Amazon; and the Guaviare and the Meta (now navigated by steamers) and its affluents with the Orinoco. The republic has the right of navigating the Amazon proper, which separates it from Brazil, as also of navigating the Orinoco, which constitutes in part its boundary on the side of Venezuela. But the most important river is the Magdalena, with its tributary the Cauca, together 2,000 m. in length, and traversing almost the entire republic, from N. to S. The former is navigated by steamers for 700 m. to the rapids of Honda. Whenever enterprise shall overcome these rapids, and restore the old canal which ran from the river to the port of Carthagena (which it is estimated can be done for $150,000), the river will become one of the most important water-ways of all South America, and will accommodate at least three fifths of the entire inhabited territory of New Granada, now having a commerce of not less than $21,000,000. The river Atrato is scarcely less important; it has a length of 300 m., and, it is believed by many, will some day afford an important aid in uniting the two oceans. The rivers Patia and San Juan are the most important falling into the Pacific, and may be greatly improved, with advantage to commerce, inasmuch as they communicate with the high, salubrious, and fertile districts of Popayan, Pasto, Tuquerres, and the famous valley of Cauca, which Bolivar called "the Italy of America."—The fauna and flora of New Granada combine almost the entire range of the tropical, intertropical, and temperate zones. The traveller frequently encounters in a single day's journey the four seasons of the year, and the vegetable peculiarities of the three central zones of the globe. He finds wheat, potatoes, the breadfruit, the *quina* (Peruvian bark), *pitayo*, cedar, balsam of Tolu, vanilla, lignumvitæ, mahogany, wax tree, caoutchouc, and the three trees perhaps most precious of all, viz.: the *albataque*, the vine of the cross, and the *arisa*, all remarkable specifics, the first against inflammation, the second for stanching effusions of blood, and the third for instantaneously stopping bleeding at the nose. Pearls, mother of pearl, tortoise shell, and coral abound on the coasts of Panama and Carthagena. The changeable butterfly of Muzo is without a rival in its beauty, as also the curious and brilliant bird of Velez, called *sol y luna* (sun and moon) from having the image of both those luminaries portrayed on its wings. In the vast unexplored forests popular tradition reports the existence of the *panchique* and *manearita*, enormous quadrupeds never seen alive, but whose tracks, those of the first round, and those of the second marked with three great toes, have been often observed in the mountains of Coconuco in Popayan, and at Piedecuesta in Santander. It is affirmed that on the line of the tracks of the *panchique* the branches of the trees have been broken off to the height of 15 feet.—The geological conditions of New Granada are equally extraordinary and perplexing, and must ultimately attract the study of scientific men. Everywhere are found traces of stupendous cataclysms, and a disarrangement and intermixture of primitive and sedimentary rocks, which seem to put all classification at defiance. In places great rivers and even small streams have cut through mountains of the hardest rocks, leaving dizzy escarpments on either hand; in other places we come suddenly on enormous subsidences in the earth, as if the props of its surface had suddenly given way, or vast caverns glistening with stalactites; while everywhere colossal masses, lifted high above the general level, attest the violence of volcanic agencies. These agencies are still active in some places, as in Batan near Sogamoso, where the soil is so much heated that, although in the heart of the Andes, it produces all the fruits of the tropics. The celebrated New Granadian geologist, Joaquin Acosta, describes great glaciers which he saw in the Paramo of Ruiz, a phenomenon which escaped the attention of both Humboldt and Boussingault.—From Costa Rica to Venezuela, New Granada abounds in rich, auriferous alluvions of great extent. There is hardly a state which does not possess in its soil more or less gold. It is claimed that Choco, Antioquia, Mariquita, Popayan, Pamplona, Ocaña, Bucaramanga, and other places are exceedingly rich in that metal. Even now, though rudely worked by a few laborers, they produce annually from $10,000,000 to $12,000,000 worth. The auriferous sands of Antioquia, according to M. Dufrénoy, afford results very nearly coinciding with those of California. Choco produces nearly all the platinum, and Muzo the emeralds which are now found in foreign markets; and in various parts of the country are mines of silver, copper, lead, iron, quicksilver, coal (in Bogota, Cali, Soata, Chiriqui, &c.), amethysts, and other varieties of rare and valuable stones and minerals. The great coal bed of Cali, it is believed, extends beyond the Cordilleras to the Pacific.—The late Col. Codazzi has demonstrated that in the highlands of Bogota, Tunja, and Velez, where is now the densest population, there once existed a system of broad and deep lakes, which, breaking through the barriers that encircled them, precipitated themselves through what is now the river Suarez or Sogamoso into the ocean, leaving the rugged traces of their irruption boldly marked on the face of the country. The same authority conceives that this great cataclysm may have occurred within the past four centuries. Some evidence in support of his theory is afforded by two great stones which have been discovered on opposite sides of what must have been the borders of the principal lake; both face toward the points of rupture of the mountains, and the faces of both are covered with sculptures, among which are distinguishable figures of the frog (the Chibcha sign of water) with outspread feet, and human figures with upraised arms, in attitude of surprise or alarm. The Cojines de Tunja, the Calzada del Llano de Patagüi, and the ruins of Infiernito are remarkable remnants of Chibcha architecture. The last named consists of 100 beautiful round columns of green sandstone, one 15 feet high, probably belonging to some palace or temple. Beyond the limits of the Chibcha kingdom, on the head waters of the river Magdalena, are found innumerable ancient relics of stone, the probable remains of a race more cultivated than was found there in 1537.—Among the natural curiosities of the country may be mentioned the falls of Tequendama near Bogota, upward of 700 feet high; the natural bridge of Pandi or Icononzo, spanning the river Sumapaz at an elevation of 600 feet; the cascade of the Rio Vinagre, so called from the sulphuric acid with which its waters are charged; the great orifices called Hoyo del Aire and Hoyo de los Pajaros, near Velez; the Peñon de Quitisoque, from the symmetrically pierced summit of which fall 3 beautiful streams of water; the Fura-Tena (man and woman in the Chibcha language), and the Boqueron de Peña Armada, which are two stupendous cuts or excavations made by the Rio Minero, the second 10,650 feet deep; and the natural tunnel of the Rio Suarez.—The people of New Granada are generally distinguished for their aptitude, festive humor, and generous impulses. They are hospitable, and invincible in their repugnance to military rule, to such a degree that no military chief has ever succeeded in establishing himself in power. The educated classes rank among the first in South America for their scientific and literary culture. The people of Socorro and Antioquia have been called the "New Englanders of New Granada," from their laborious industry and their mercantile enterprise. The women of Antioquia, Bogota, Ocaña, and other cities are celebrated by travellers for their grace and beauty.—The interior commerce of the country is greater than the exterior. The annual exports and their values are given approximately in the following table:

Gold	$5,000,000
Platinum, silver, emeralds, &c.	1,000,000
Pearls and tortoise shell	800,000
Tobacco, from Ambalema, Cauca, &c.	3,500,000
Panama hats	1,400,000
Other manufactures	50,000
Quinine	600,000
Dye woods and timber	500,000
Coffee	500,000
Hides	500,000
Cacao	80,000
Caoutchouc (India rubber)	50,000
Maize, vegetable ivory, rice, balsam, &c.	200,000
Total	$14,180,000

Industry in the country is generally backward, and travel is difficult from the absence of good roads.—The constitution of New Granada is closely modelled after that of the United States. Complete freedom in religion and worship is conceded, and there is absolute independence of church and state. Trial by jury, freedom of the press, free navigation of the interior waters of the republic for all flags, prohibition of monopolies, abolition of slavery and the penalty of death for political offences, gratuitous primary education, the establishment of a public school in every parochial district, equal rights of foreigners with citizens, freedom of foreign and domestic periodicals from postage, a decimal money system, freedom of the ports of the isthmus of Panama, and liberal encouragement of emigration, are among the laws and guaranties which have distinguished the policy of the country and its government. The public treasury, although weighed down by an exterior debt of $34,500,000, inherited from the old republic of Colombia, has been managed with great integrity. The revenue has fallen to about $2,000,000 annually, chiefly in consequence of the abolition of the tobacco monopoly, and the surrender of imposts on the transit of the isthmus of Panama. There are 800 public schools, 60 seminaries and colleges for higher and professional instruction, 47 printing establishments, 40 periodicals, various literary and scientific societies and theatres, 3 hospitals, 2 asylums, one of which is for orphans, and a number of savings banks for the poor, administered gratuitously, and paying an interest of 1 per cent. a month. Efforts are now making to finish the "Physical and Political Geography of New Granada," a work of great extent and value, commenced by Col. Codazzi, and cut short by his death.—The principal aboriginal nation of New Granada was Chibcha, or Muysca, ranking fourth in the list of semi-civilized American families—the Tzendals or Toltecs being first, the Nahuatls or Aztecs second, and the Quichuas or Peruvians third. The early chroniclers represent them as frugal, industrious, and happy, with a well organized government and a systematized religion. They believed in the teachings of the beneficent demi-god Nemquetеba (envoy of God), who corresponded in character with Manco Capac in Peru, and Quetzalcoatl in Mexico. He made his first appearance to man, according to the Chibcha tradition, seated on a rainbow. The sovereignty of the Chibchas was divided between the *zipa* or lord, who resided in Muequeta, now Frenza, and the *zaque*, signifying also lord, who lived in Hunsa, now Tunja. There was an elective high priest, whose seat was in Iraca, now Sogamozo, who had the right of final mediation between the *zipa* and the *zaque*. They believed in the immortality of the soul, and, it would seem, had some notion of a triune God. Their language was soft and fluent, rich in words, and full of sonorous diphthongs. The sound *ch* was often repeated, as in the Italian. Although at the time of the discovery numbering upward of 2,000,000, and having chieftains distinguished in war, yet they were reduced by Ximenes de Quesada, a lawyer transformed into a general, but nevertheless worthy to rank with Cortes and Pizarro, at the head of but 166 Spaniards. The natives of the coast of the Atlantic, from Chiriqui to Goajira, are of the Carib stock, and very similar to the Guaranis of Brazil. Some nations are still in a savage state, as the Mesayos, Caquetes, Choques, Mocoas, Omaguas, Goajiras, and others. These still preserve their languages, but the Chibchas and allied nations have nearly lost theirs, and now speak Spanish. The Mesayos and some others are said to be cannibals, with very indistinct ideas of a Supreme Being.—The coasts of New Granada were discovered by Alonzo de Ojeda in 1499, and visited by Rodrigo Bastidas in 1501, and by Columbus in 1502. The conquest was effected in 1536–'7, and the country erected into a viceroyalty in 1718. The first efforts for emancipation from Spain were made in 1781 and 1795; independence was proclaimed in 1810, and secured by Bolivar in 1819. The union of the country with Venezuela and Ecuador, in the republic of Colombia, was dissolved in 1830, and the present republic of New Granada finally organized in 1832, since which period there have been 7 successive administrations in the government, each completing its constitutional term of 4 years, viz.: that of Gen. Santander, from 1833 to 1836 inclusive; Dr. Marquez, 1837–'40; Gen. Herran, 1840–'44; Gen. Mosquera, 1845–'8; Gen. Lopez, 1849–'52; Gen. Obando, whose term was concluded by the vice-presidents Obaldia and Mallarino, 1853–'6; and Dr. Ospina, 1857–'60. Every revolution attempted in New Granada has succumbed to the constitution and laws, and civil government has been uninterrupted.—See J. Acosta, *Historia del descubrimiento, conquista, y colonisation de Nueva Granada* (Paris, 1849); Mosquera, "Memoirs on the Geography of New Granada" (New York, 1853); and J. F. Holton, "Twenty Months in the Andes" (New York, 1856)

NEW GUINEA, or Papua, next to Australia the largest island of Australasia, lying between lat. 0° 15′ and 10° S. and long. 131° 20′ and 149° 20′ E.; length 1,200 m.; area estimated at 200,000 sq. m. To the S. it is divided from Australia by the straits of Endeavor and Torres, the latter of which is about 80 m. broad; on the N. it is washed by the Pacific ocean; on the E. it is separated from New Britain by Dampier strait; and on the W. are Ceram and the other islands of the Molucca sea. It is of irregular outline, and the coasts are in many places deeply indented with bays. Little is known of the whole island, and until very lately the acquaintance of Europeans with it has been confined to a few places on the coast. The interior has not been explored by white men, but recent travellers describe the whole northern peninsula of the island as rugged and mountainous. A succession of jagged ranges stretches far away into the interior, and is visible from both the N. and S. coasts; it runs E. and W., and the highest peaks appear to be covered with snow. No traces of volcanic action are to be found, slate and limestone being the rocks chiefly met with. The rivers of New Guinea are unknown, the mouths of a few only having been seen; but it is inferred from the great height of the mountain range in the interior, and its distance from the coasts, that there must exist some considerable streams. In lat. 5° and long. 137° 30′ the Dutch discoverers of 1828 examined the mouth of a river which they estimated to be more than half a mile broad, but at a short distance above it was found to branch off into three different streams. The climate of New Guinea is warm, and is said to be exceedingly moist, with heavy rains from March to October. The whole island appears to be one luxuriant forest, and many of the trees reach the height of 180 feet. The accounts of all the navigators who have touched on its coasts agree in describing it as a rich and magnificent country, containing, in all probability, the most valuable vegetable products of the Moluccas. Forrest found the nutmeg tree on an island situated near the coast; and he learned that a people in the interior, called Haraforas, cultivate the ground and bring their produce down to the sea coast; that they are very poor, and some of them have long hair; and that they live in trees, which they ascend by cutting notches in them. The hog is the only large mammiferous land animal found in New Guinea. The Dutch naturalists, who resided on the S. coast for 3 months in 1828, only found 6 mammifers, and all of them belonged to the marsupial or pouched class of Australia; two of them were kangaroos, but differed from all others of the same family by their singular habit of living in trees. The feathered tribes are of great beauty and infinite variety. New Guinea is the native country of the bird of paradise, which is said to migrate in large flocks, in the dry season, to the islands lying to the W. and N. W. During the residence of the Dutch on the S. coast, they collected 119 species of birds, belonging to 60 genera. In this collection, birds of prey were rare, and the family of the pies altogether wanting. The most numerous families consisted of the insect eaters, parrots, and pigeons. There were many aquatic birds, both web-footed and waders, but more especially the latter. The Dutch naturalists also collected 26 different species of reptiles, viz.: 15 lizards, 5 serpents, 5 frogs, and 1 tortoise. Fish were found in abundance on the coast.—The inhabitants of New Guinea are a variety of the negrillo or oriental negro, and it is inferred that they are of the same race throughout the island. No other indigenous race has been found on any part of the coast, and the prisoners brought from the interior and sold as slaves are found to be the same. The Papuan negroes are below the middle height, or about 5 feet 4 inches; their complexion is deep brown or black; the nose is flat with wide nostrils; the mouth is large, with thick lips and good teeth. The hair of the head grows in spiral detached tufts about 10 inches long, and the beard and whiskers are frizzly. A very wide difference seems to exist in the state of society in different parts of the island. The inhabitants of the W. coast, having been for ages in communication with the people of the Indian archipelago, more especially with those of the Moluccas, have received a certain portion of their civilization. They have consequently good dwellings, and are decently clothed; they build large rowing and sailing boats, and have a knowledge of iron; they cultivate some ground, and have two domestic animals, the hog and the dog. Toward the E. the tribes become gradually more barbarous. In 1822, when the Dutch visited the S. coast, opposite the gulf of Carpentaria in Australia, they encountered, instead of the peaceable inhabitants of the opposite shores, a tribe of naked and ferocious savages, who avoided every attempt made to hold intercourse with them. They had canoes, but no domesticated animals, and did not know the use of iron. The inhabitants are divided into small, independent tribes, who speak different languages, and live in a state of almost continual warfare. On the N. and S. coasts the Dutch discoverers in 1828 and 1835 found it necessary to procure fresh interpreters when they moved even a few miles. The population of New Guinea must be small, but there is no means of forming any correct estimate of its amount.—The island was discovered in the early part of the 16th century by the Portuguese, by whom it was named New Guinea from the striking resemblance between its inhabitants and those of Guinea in Africa. The Malay and Javanese call it Tannah-puwah-puwah, which means the land of the woolly or frizzled, and this has been corrupted into Papua. The Dutch were the first European nation to attempt to form a settlement on New Guinea. In 1828 they began to erect a fort in lat. 5° S. and long. 133° 30′ E., but the climate proved so unhealthy that they were forced to abandon it. In 1845 H. B. M. ship Fly surveyed 140 m. of the S. E. coast of New Guinea within the Great Bight, and found the coast low, and intersected by many channels which appeared to be the estuaries of a large river. The boats ascended one of these for about 20 m., but as the inhabitants appeared to be of a warlike disposition it was thought imprudent to land. There were many villages seen at intervals along the banks. In the following year the schooner Bramble continued this survey along the S. E. shore of the bight, and as they proceeded S. it was found that the country improved in appearance. In 1848 the Rattlesnake, another British ship, accompanied by the Bramble, commenced a further survey of the S. E. part of New Guinea. They determined the positions of many reefs and smaller islands, and found the height of a mountain, in the neighborhood of the S. E. cape of the island, to be 13,205 feet above the sea. European and Mohammedan traders are found at Dorey in the N. part, and the Dutch, who have again formed settlements on the island and taken possession of it as far E. as long. 141°, carry on an active and exclusive trade between it and the Moluccas. The population of the Dutch possessions on the coast amounted in 1859 to about 100,000. The governor in 1860 was Lieut. Col. Nagtglas. The value of the trade with the Netherlands is estimated at $600,000.

NEW HAMPSHIRE, one of the 13 original states of the American Union, bounded N. by Canada East, E. by Maine and the Atlantic, S. by Massachusetts, and W. by Vermont, from which it is separated by the Connecticut river. It is situated between lat. 42° 41′ and 45° 11′ N., and long. 70° 40′ and 72° 28′ W.; length from N. to S. 176 m., extreme breadth 90 m., average breadth 45 m.; area, 9,280 sq. m., or 5,939,200 acres. The state is divided into 10 counties, viz.: Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan. Concord, on the river Merrimack, is the seat of government. The other most important cities and towns are Manchester, Portsmouth, Dover, Nashua, Keene, Exeter, Peterborough, Laconia, Somersworth, Rochester, Claremont, Hanover, and Haverhill.—The population of New Hampshire in 1790 and at the subsequent decennial periods was as follows:

U. S. Census.	Whites.	Colored.	Total.
1790	141,111	788	141,899
1800	182,898	864	183,762
1810	213,390	970	214,360
1820	243,236	925	244,161
1830	268,721	607	269,328
1840	284,036	538	284,574
1850	317,456	520	317,976
1860	....	....	326,175

Of the white population in 1850 there were 155,960 males and 161,496 females; of the colored, 260 were males and 260 females. Deaf and dumb, 162; blind, 134; insane, 378; idiotic, 351. Density of population, 34.26 to the square mile; proportion to that of the whole Union, 1.37 per cent. Dwellings, 57,339; families, 62,287. Born in New Hampshire, 261,591; in other states, 42,636; in foreign countries, 13,571; unknown, 178; natives of New Hampshire in other states, 109,878. The original population of New Hampshire was almost exclusively of English and Scotch descent, and the rural districts still remain without much intermixture.—New Hampshire has but 18 m. of sea coast, and the shore in most places is a sandy beach, bordered with salt marshes. There are numerous creeks and coves, which form harbors for small craft; but Portsmouth, at the mouth of the Piscataqua, is the only haven for large ships. About 8 m. off the coast lie the Isles of Shoals, 8 in number, 3 of which belong to New Hampshire. They are inhabited by a hardy race of fishermen, and have for 2 centuries past been noted for the superior quality of their dried cod, known in the market as the Isles of Shoals dunfish. For about 20 to 30 m. back from the shore the country is level, occasionally diversified with hills and valleys. Beyond this the hills increase in number, and in many parts rise into lofty mountains, particularly toward the N. part of the state, where the White mountains are situated. The White mountains proper extend only from 14 to 20 m., but detached groups are found throughout New Hampshire, and the whole are sometimes regarded as a continuation of the Appalachian range. The principal mountain peaks of the state are Grand Monadnock, near the S. W. corner, 3,450 feet above the level of the sea; Chocorua in Albany, 3,358 feet; Sunapee mountain, near Sunapee lake; Kearsarge mountain, between Sutton and Salisbury, 2,461 feet; Carr's mountain in Ellsworth; Moosehillock in Benton, 4,636 feet; Mt. Washington, the most elevated peak of the White mountains, 6,285 feet high; and Mt. Lafayette, at Franconia Notch, 5,500 feet. With the exception of the strip bordering the ocean, the whole state is mountainous and broken, but there are many fine valleys through which the chief rivers have their course. The general slope of the country is from N. to S. The Connecticut river, which is the largest stream, rises near the N. extremity, and forms nearly the whole W. boundary; the chief tributaries which it receives from this state are the Upper and Lower Ammonoosuck in the N., and the Ashuelot in the S. The Merrimack is formed by the junction of the Pemigewasset, which rises in the White mountains, and the Winnepiseogee, the outlet of the lake of the same name, at Franklin, and runs S. through the middle of the state to Massachusetts. Baker's river, rising near Moosehillock mountain and uniting with the Pemigewasset at Plymouth, is one of its principal sources. The Salmon Falls river and the Piscataqua, of which it is a branch, constitute part of the boundary line between Maine and New Hampshire. The Cocheco is a branch of the Salmon Falls; and the Lamprey and Exeter discharge their waters into the Piscataqua proper. The Merrimack and its branches, and the Salmon Falls, have numerous cataracts, and furnish a large amount of water power to Manchester and other manufacturing towns on their banks. The Androscoggin has a small part of its course in the N. E. of this state, and the Saco also has its source among the White mountains, and runs S. E. into Maine. The passage of the Saco near its head waters through the mountains forms the celebrated Notch, a remarkable chasm 2 m. long, and where narrowest only 22 feet wide. This is the only opening through the mountains, and after a heavy fall of rain the stream becomes much swollen. In 1826 a violent storm caused a slide of earth 2 m. from the Notch which crushed 9 persons, choked up the Saco river, and flooded the country. The Margalloway, which falls into Lake Umbagog, has part of its course in New Hampshire. About 110,000 acres of the surface of this state are covered with water. Winnepiseogee is the largest and most beautiful lake. It is about 25 m. long by from 1 to 10 broad, and contains about 360 islands, and its shores are indented with numerous bays. Umbagog lake, about 18 m. long and 10 broad, on the boundary between Maine and New Hampshire, is the source of the Androscoggin; Connecticut lake, the source of the river of the same name, is in the N.; and Sunapee and Squam lakes and several smaller bodies of water are the sources and recipients of many streams. With the exception of Niagara falls, the mountain scenery of New Hampshire attracts more tourists than any other natural object in the United States. The traveller may wander for weeks through a country which presents to the view a continual change of mountains, rivers, lakes, and waterfalls, and for which the grandeur and diversity of its scenery have procured the appropriate name of "the Switzerland of America."—The geological formations of New Hampshire are almost exclusively those of the ancient metamorphic rocks, the mica and talcose slates, quartz rock, granular limestones, granites, gneiss, &c. Though they contain numerous veins of metallic ores, none of these have proved of much practical importance. The most promising are the enormous beds of magnetic and specular iron ores of Bartlett, and the specular ores of Piermont on the western side of the state, neither of which have ever been worked. At Franconia a blast furnace (the only one ever built in the state) and some forge fires have been, with some interruptions, in operation since 1811, reducing the magnetic ores of that vicinity. Copper, zinc, and lead ores, most of the last argentiferous, are found in a large number of towns. A lead mine, largely argentiferous, and containing also a considerable quantity of copper, is successfully worked in Warren. A vein, containing oxide of tin in small quantity and associated with arsenic, occurs in the town of Jackson. Granular quartz has been worked in the towns of Unity and Keene, and applied to a variety of purposes. It is ground between millstones and bolted, to be used either as a polishing powder or for the preparation of sand paper at the manufactory of that article in Rockingham, Vt. It has also been mixed instead of barytes with white lead. Acworth, near Bellows Falls, is celebrated for its beryls, specimens of which of gigantic size are found in the collections of minerals throughout Europe. There are also found tourmalines and mica in great perfection. The latter is extensively quarried at Alstead, a few miles S. of Acworth, and at Grafton, 35 miles N. It is sold at from $2 to $8 per lb. to be used for the windows in stoves, for lanterns, compass cards, &c. Sulphuret of molybdenum is found in many places, especially at Westmoreland; and graphite or plumbago is also a common mineral, which is worked for the manufacture of crucibles at Taunton, Mass. Steatite or soapstone is also found at many localities. It is obtained in the quarry in Francestown, and also at that in Orford, in large blocks, which are cut to the dimensions of 6 feet by 3 and 7 feet by 5, as well as into slabs and smaller blocks. It is used for stoves, fireplaces, sinks, for rollers used in dressing cotton warp, and for other purposes.—The soil of New Hampshire is not generally very fertile, but by industry and skill the inhabitants have in great measure overcome its natural defects. The best lands are in the valleys of the rivers, some of which are subject to occasional overflows. The N. part of the state is chiefly pasture and wood land. The climate is severe, being somewhat colder than that of Maine, but more steady. Difference of elevation within the state, however, causes great difference in the degree of temperature; so much even as 20° to 25° between the valleys and the more elevated positions. In summer the heat sometimes rises to 100°, and in winter the cold has been known to freeze the mercury in the thermometer. In the neighborhood of the White mountains the winters are excessively cold, and the peaks are covered more or less with snow 9 or 10 months out of the 12, from which circumstance their name has been derived. All parts of New Hampshire are exceedingly healthful, and cases of remarkable longevity are very numerous. The cold weather begins about the middle of September and continues till May; and from the latter part of November till the opening of spring the whole country is covered thickly with snow, and the rivers are all frozen.—The natural productions of New Hampshire include the oak, pine, hemlock, ash, beech, birch, and other trees, which are largely exported in the shape of lumber. The sugar maple and the pitch pine are abundant. The native animals, though much thinned, are not yet exterminated; wolves, bears, and other wild beasts are still found in the N. part of the state, and occasionally commit depredations on the farms. Wild fowl and game are abundant, and both lakes and rivers are well stored with fish.—On June 1, 1850, New Hampshire contained 29,229 farms under cultivation, covering 2,251,488 acres of improved and 1,140,926 acres of unimproved land; value of farms $55,245,997, and of implements and machinery thereon $2,341,125. The live stock consisted of 34,233 horses, 19 asses and mules, 94,277 milch cows, 50,027 working oxen, 114,606 other cattle, 384,756 sheep, and 63,487 swine; aggregate value, $8,871,901; and the value of the animals slaughtered in the year then ending was $1,522,873. Of wool there was produced 1,108,476 lbs.; of butter, 6,977,056 lbs.; and of cheese, 3,196,563 lbs. The grain crops for the same year were: wheat 185,658 bushels, rye 183,117, oats 973,381, Indian corn 1,573,670, barley 70,256, buckwheat 65,265, and potatoes 4,304,919; hay, 598,854 tons; clover seed 829, and other grass seed 8,071 bushels; flax seed, 189 bushels; flax, 7,752 lbs.; peas and beans, 70,856 bushels; tobacco, 50 lbs.; hops, 257,174 lbs.; silk cocoons, 191 lbs.; maple sugar, 1,298,863 lbs., and 9,811 gallons of molasses; beeswax and honey, 117,140 lbs.; wine, 344 gallons. The orchard products were valued at $248,563, those of market gardens at $56,810, and home manufactures at $393,455.—Manufactures of various kinds are extensively carried on, the great water power of the rivers affording peculiar facilities for the economical use of machinery. By the census of 1850 there were 3,301 manufactories, each producing annually upward of $500 worth of goods. Of this number 44 were engaged in cotton manufacture, capital $10,950,000, employing 2,911 male and 9,211 female hands, consuming raw material worth $4,839,429, and producing 113,106,247 yards of stuffs and 140,700 lbs. of yarn, valued at $8,830,619; 61 woollen factories, capital $2,437,700, employing 926 male and 1,201 female hands, consuming raw material worth $1,267,329, and producing 9,712,840 yards of stuffs and 165,200 lbs. of yarn, valued at $2,127,745; 29 iron founderies, furnaces, &c., capital $238,700, employing 390 male hands, consuming raw material worth $187,560, and producing 6,074 tons of pig, cast, and wrought iron, valued at $388,100; 163 tanneries, capital $441,975, consuming raw material worth $543,779, and producing leather valued at $900,421. The above list includes the principal manufactured articles of New Hampshire; but there are a great number of others, which taken in the aggregate would probably amount to very nearly as much in value. There are numerous grist and saw mills, carriage factories, paper and powder mills, hardware and cutlery factories, machine shops, manufactories of glass, shoes, wooden ware, &c.—Portsmouth is the only port of entry, and the centre of all the direct foreign commerce of New Hampshire; but the great bulk of the commercial intercourse of the state is carried on through Boston. In the year ending June 30, 1859, the exports from Portsmouth amounted to $9,793, and the imports to $23,227. The entrances comprised 48 vessels of 4,857 tons, 44 vessels and 3,592 tons being foreign, and the clearances 47 vessels of 4,084 tons, 45 vessels and 3,668 tons being foreign. The chief exports of the state consist of manufactured goods, timber, live stock, wool, fish, beef, pork, apples, pot and pearl ashes, and granite. The shipping registered at Portsmouth and belonging to the state in 1859 amounted to 34,485 tons. The steamers which run on Winnepiseogee lake are registered at Portsmouth. In the year ending June 30, 1859, there were 6 vessels built, with an aggregate tonnage of 3,846. The railroads lying wholly or in part in New Hampshire, with their lengths within the state as nearly as can be ascertained, are as follows:

	Miles.
Concord, from Concord to Nashua	35
Portland division of Grand Trunk of Canada	52
Boston, Concord, and Montreal, from Concord to Haverhill	93
White Mountains, from Haverhill to Littleton	20
Northern New Hampshire, from Concord to W. Lebanon	69
Concord and Portsmouth	47
*Concord and Claremont, from Concord to Bradford	25
Contoocook River, from Hopkinton to Hillsborough	15
Manchester and Lawrence	23
Worcester and Nashua	8
Nashua and Lowell	4
Wilton, from Nashua to Wilton	15
*Peterborough and Shirley, from Groton, Mass., to Mason village	12
Cheshire, from Fitchburg to Bellows Falls	40
Ashuelot, from South Vernon, Vt., to Keene	16
Manchester and North Weare	19
Cocheco, from Dover to Alton bay	28
*Great Falls and Conway (to Union village)	20
Boston and Maine	36
Eastern, from Portsmouth to Massachusetts	18
Sullivan, from Bellows Falls to Windsor, Vt.	26
Total	621

Several short canals, locks, and dams were built in connection with the improvement of the navigation of the Merrimack river, but they have been entirely superseded by the railroads, and are now altogether disused. On Dec. 3, 1860, there were 51 banks, the condition of which was as follows: Liabilities: capital, $4,981,000; circulation, $3,332,010; deposits, $1,284,627.74. Resources: notes, bills of exchange, &c., $8,794,948.88; specie, $243,719.77; real estate, $75,646.74; total, $9,114,315.39.—The New Hampshire asylum for the insane is said to be one of the best establishments of the kind in the United States. The blind are sent to the Perkins institution in Massachusetts, and the deaf and dumb to the American asylum in Connecticut. An excellent system of education has been established. The office of school commissioner was abolished in 1850, and the county commissioners of schools now constitute the board of education. The school report for the year ending May, 1859, gives the following statistics. The number of districts was 2,362; of scholars, 86,708; average attendance for the year, 55,606; male teachers 1,104, female 3,184; and 37,308 volumes were in the school, district, or town libraries.

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* Unfinished.

In the year 1858, 18 teachers' institutes, attended by 1,901 teachers, were held in the different counties. There are 4 theological, 1 medical, and 107 private schools, and 1 college, Dartmouth, with an income in 1850 of $11,000. In 1858 a house of reformation for juvenile and female offenders was opened at the "Stark Farm" in the vicinity of Manchester, capable of accommodating 125 boys and 25 females. During the year ending May 31, 1859, 88 convicts were received into the state prison, making a total, with those previously imprisoned, of 148. The receipts and earnings of the institution for the year were $10,578, and the expenses $8,247. In 1859, according to the latest reports of the different denominations, there were 700 churches or religious societies, of which 91 were Baptist, 24 Christian, 190 Congregational, 16 Unitarian, 78 Universalist, 14 Episcopal, 127 Freewill Baptist, 15 Friends', 91 Methodist, 8 Presbyterian, 11 Roman Catholic, 2 Shakers', and 38 union and miscellaneous. The value of church property is estimated at more than $1,500,000. The total number of newspapers in New Hampshire in 1860 was 38, 3 of which were daily. There is one monthly periodical, devoted to education.—The constitution of 1784, amended in 1792, is the fundamental law of the state. The government is vested in a governor, a council composed of 5 members, a senate of 12, and a house of representatives, all to be elected annually. The state is divided into 5 councillor and 12 senatorial districts. The right of suffrage is extended to every male inhabitant 21 years old, who has resided in the town 6 months, excepting paupers, and persons who at their own request are excused from paying taxes. A town having 150 rateable polls may choose one representative, with the allowance of one additional representative for every additional 300 polls. The general election is held on the 2d Tuesday in March, and the official year begins on the 1st Wednesday in June. No person can hold the office of governor, or be a senator or representative in the legislature, unless he conforms to some denomination of Protestantism. The selectmen of towns must submit to the inhabitants once in every 7 years the question of amending the constitution, when if a majority be in favor thereof a convention must be called, and if the amendments are carried by a two-thirds vote when submitted to the people they become law. Since June, 1859, the judiciary consists of a supreme judicial court, with a chief justice and 5 associates; this is now the only state court, excepting justices' and police courts. Terms are held by one or more of the judges twice a year in each county, and in some counties 3 times annually. The state is divided into 4 judicial districts, and for the determination of questions of law 2 terms are held in each annually. The revenue of New Hampshire is derived principally from taxation. For the year ending June 1, 1860, it amounted to $206,890.39, including a balance in the treasury from the previous year of $27,802.60, and a temporary loan of $42,750. The expenditure during the same year was $184,445.77, which left a balance to the credit of the state of $22,444.62. On June 1, 1860, the amount of the state debt was $82,147.76, from which would have to be deducted the amount in the treasury, some outstanding taxes, and $15,592 of trust funds.—New Hampshire was first visited by Europeans in 1614, and the first settlement was made near Portsmouth in 1623. The district was several times connected with Massachusetts; it was made a royal province in 1679, but was again joined to Massachusetts in 1689, and was afterward for a little while attached to New York. In 1741 it became a separate province, and remained so till the revolution. The early settlers were greatly annoyed by the Indians until after the English got possession of Canada. In 1689, in revenge for some injuries done them 13 years before, a party of Indians attacked Dover, killed many of the inhabitants, and burned several houses. The settlements of New Hampshire were gradually extended further W. than the original limits prescribed by the patents of the colony, and it was supposed, till 1764, that the territory at present included in Vermont formed part of the province, and grants of land were made in that direction by the authorities. The disputed district was claimed by New York, and a vexatious controversy ensued, which lasted till the independence of Vermont was acknowledged in 1790. In 1776 New Hampshire made a public declaration of independence, and established a temporary government to continue during the war. The state took an active part in the war of independence, and the men of New Hampshire were engaged on every battle field from Bunker hill to the surrender of Cornwallis in 1781. At the battles of Stillwater, Saratoga, Monmouth, and Bennington they were particularly distinguished for their bravery. On June 21, 1788, the state in convention ratified the constitution of the United States, 57 votes being cast for and 46 against it. In 1807 the seat of government was permanently established at Concord. About 1834 a dispute of long standing with the settlers of that part of the state north of lat. 45°, who claimed to be independent of state jurisdiction, led to the military being called out, but order was restored without serious conflict.

NEW HANOVER, a S. E. co. of N. C., bordering on the Atlantic and bounded W. by the Cape Fear river and one of its branches; area estimated at 1,000 sq. m.; pop. in 1850, 17,668, of whom 8,581 were slaves. It has a level surface with occasional swamps, and a not very fertile soil, and contains large forests of pine. The productions in 1850 were 215,488 bushels of Indian corn, 163,002 of sweet potatoes, and 1,413,525 lbs. of rice. There were 6 saw mills, 4 planing mills, 14 turpentine distilleries, 25 tar and turpentine manufactories, 2 ship yards, 6 newspaper offices, 19 churches, and 1,17[illegible] pupils attending public schools. It is intersected by the Weldon and Wilmington railroad. Capital, Wilmington.

NEW HARMONY, a town in Posey co., Ind., on the Wabash river, 50 m. from its mouth; pop. estimated at 700. It was built by the Harmonists under George Rapp in 1815, and purchased from them in 1824 by Robert Owen for the purpose of testing his social system, an experiment which resulted unsuccessfully. Mr. Owen sold a large portion to William Maclure, who there established a school of industry, which after a trial of about 6 years was abandoned. After the failure of these various projects the town declined for several years, but is now improving. It contains an Episcopal and a Methodist church, a working men's institute, a large school house, a union hall used as a theatre, 3 steam mills, and 2 distilleries. In 1857 it exported 1,900,000 lbs. of pork, 6,000 bbls. of whiskey, 20,000 bushels of wheat, 150,000 bushels of Indian corn, and 600 head of cattle.

NEW HAVEN, a S. co. of Conn., on Long Island sound, bounded W. by the Housatonic river, and drained by the Naugatuck, Quinepiack, and other streams; area, 640 sq. m.; pop. in 1850, 65,588. The surface is generally uneven, mountainous in the middle and toward the E., and the soil is moderately fertile. On the coast there are several excellent harbors. The agricultural productions in 1850 were 225,881 bushels of Indian corn, 445,125 of potatoes, 112,727 of rye, 107,859 of oats, 67,176 tons of hay, 45,986 lbs. of wool, and 943,915 of butter. There were 11 grist, 6 paper, and 15 saw and planing mills, 12 founderies, 37 boot and shoe and 3 pin manufactories, 13 tanneries, 103 churches, and 10,781 pupils attending public schools. The county is intersected by the Naugatuck, New Haven and Northampton, and New Haven, Hartford, and Springfield railroads; and the New York and New Haven, and the New Haven and New London railroads meet at the capital, New Haven.

NEW HAVEN, a township, city, and port of entry of Connecticut, capital of New Haven co. and semi-capital of the state, situated at the head of New Haven bay or harbor, 4 m. from Long Island sound, and 76 m. E. N. E. from New York, in lat. 41° 18′ 28″ N., long. 72° 56′ 30″ W.; pop. in 1850, 22,538; in 1860, not including about 1,200 persons temporarily residing in the city for purposes of education, 39,277, viz.: of the city proper 35,535, of Westville 1,095, and of that part of Fair Haven which lies in New Haven township 2,647. The city stands on a plain about 2 m. wide, and is nearly surrounded by hills from which delightful views may be obtained. Chapel street, the fashionable promenade, extends in a W. N. W. direction throughout the length of the city. The dwelling houses are generally neatly built and surrounded by gardens, and many of them are almost hidden from view among trees. The number of magnificent elms with which the principal avenues are planted has caused New Haven to be called "the city of elms." They were mostly set out about the close of the 18th century by James Hillhouse, or through his influence and example. Of several public squares which adorn the city, the principal are Wooster square, an enclosure of 5 acres in the E. part, laid out with remarkable elegance and good taste, and the "Green," 16 acres in extent, and shaded by beautiful elms. Brewster's park, adjoining West river and Westville, comprises 55 acres. Works to supply the city with water from Mill river will soon be in operation. Of the public buildings, the first in point of interest are those connected with Yale college. They consist mainly of 8 plain brick structures opposite the public green, occupying nearly a whole square, and a number of other edifices in the rear, one of which, occupied for the library, is a costly fire-proof Gothic building, 150 feet long. (See YALE COLLEGE.) The custom house, near the green, is of Portland stone, and has apartments for the post office and U. S. courts. The state house, hospital, medical college, railroad depot, young men's institute, orphan asylum, and almshouse are the principal other buildings. There are 33 churches, viz.: 3 Baptist, 10 Congregational, 7 Episcopal, 2 Jewish, 6 Methodist, 1 Moravian, 3 Roman Catholic, and 1 Universalist. The New Haven burying ground, containing 18 acres, is beautifully laid out on the N. W. of the city. The Evergreen cemetery, on West river, is large and tastefully adorned, and near it is a Catholic burying ground. The educational establishments, beside the college, comprise a number of good private seminaries for both sexes, and a system of public schools. There are 8 banks with an aggregate capital of $3,457,000; 3 savings banks with deposits to the amount of $3,000,000; 4 fire and marine insurance companies (capital $650,000); 1 mutual life insurance company (capital $250,000); 4 daily newspapers, and several monthly and other magazines. A capital of $4,016,965 is invested in manufactures, which give employment to 7,222 persons, and produce $8,722,642 worth of goods annually. The motive power is steam. An important manufacture is that of clocks, which are made here very extensively, and are exported to the most distant countries. Carriage making is more largely carried on than in any other part of New England, as many as 18,726 vehicles, valued at $2,228,460, being turned out annually, chiefly for the southern market. Iron working, particularly in the lighter and more valuable products of that metal, and the manufacture of boots, shoes, shirts, and other articles of clothing and India rubber goods are also prominent branches of industry.—The harbor of New Haven is shallow, and has extensive oyster beds; and the main channel from the junction of Quinepiack and Mill rivers is somewhat circuitous, and not of sufficient depth for large vessels. To meet the channel from the business part of the city a wharf 3,500 feet in length has been built, and there are other landings for steamboats. Ship building is almost confined to Fair Haven. Apart from the coasting trade, the chief commerce is with the West Indies, a large proportion of the West India trade of all New England being conducted by New Haven merchants, which the U. S. commercial reports do not fully exhibit, as much of their business is done through New York. During the year ending June 30, 1859, the imports were $1,103,283, and the exports $954,789. The entrances were 132 vessels, of 27,916 tons; the clearances 113 vessels, of 23,154 tons; and the aggregate tonnage of the district, June 30, 1859, was 23,751. New Haven has regular communication by steamboats with New York, and railroad connection with all parts of the Union by means of the New York and New Haven, the New Haven, Hartford, and Springfield, the New Haven and Northampton, and the New Haven, New London, and Stonington railroads. —New Haven was settled in 1638 by a company chiefly from London under Theophilus Eaton, their first governor, and the Rev. John Davenport. It was a distinct colony until 1664, when after a protracted struggle it was united with Connecticut under the charter of 1662. It was incorporated as a city in 1784.

NEW HEBRIDES, a group of volcanic islands in the S. Pacific ocean, N. E. of New Caledonia, between lat. 13° 15′ and 20° 3′ S., and long. 166° 30′ and 170° E.; area estimated at 2,500 sq. m.; pop. about 200,000. Beside a great number of islets and rocks, they comprise about 20 islands of considerable size, the most important of which are Espiritu Santo, 70 m. long by about 25 m. broad; Mallicollo, 60 m. long by 23 m. broad, with a good harbor called Port Sandwich, in lat. 16° 25′ S., long. 167° 46′ E.; Erromango, Tanna, Ambrim, Annatom, Aurora, Banks, Sandwich, and Whitsuntide. There is an active volcano in Tanna. Most of these islands are hilly, and there are some high mountains. With the exception of Erromango, and some of the smaller, they are all well wooded and supplied with good water, and present a most luxuriant vegetation. Sandal wood and ebony are procurable. Yams, taro, shaddocks, bananas, limes, cucumbers, cocoanuts, and a species of sweet potato are cultivated. There are few animals; the most remarkable is a diminutive species of hog, which when full-grown is not larger than a rabbit. The natives are of the same race of oriental negroes that are found on New Guinea and other islands in the vicinity; they are courageous, active, and hospitable, but are accused of cannibalism. In point of intelligence they are below the natives of most of the South sea islands; their habits are disgusting, their persons filthy, and their faces smeared with turmeric and charcoal. The use of betel nut and chunam is common throughout the group; and the language is said to possess a similarity to the Malay. They have no canoes, and use a sort of raft, on which they only venture a few hundred yards from the shore.—Quiros in 1606 was the first to discover any portion of this group. He saw the N. and largest island in the group, and concluded that it must be a portion of the long sought southern continent, which he named Australia del Espiritu Santo; but he made no explorations to satisfy himself that his conjecture was well founded. He speaks of it only as one land, and it is described as abounding in gold, silver, and pearls. Bougainville, 162 years later, saw that the N. part was composed of several islands, to which he gave the name of the Great Cyclades. Cook discovered the greater part of the S. chain in 1773, and called the islands collectively the New Hebrides; and as his discovery much exceeded in extent those previously made, the name given by him has superseded that applied by Bougainville. Erromango has acquired a melancholy notoriety from the massacre of the well known missionary the Rev. John Williams, author of "Missionary Enterprises."

NEW HOLLAND. See AUSTRALIA.

NEW IRELAND, an island in the S. Pacific ocean, between lat. 2° 40′ and 4° 52′ S., and long. 150° 30′ and 152° 50′ E. It is separated from New Britain on the S. W. by St. George's channel, and from New Hanover on the N. W. by Byron's straits; length about 200 m., average breadth 12 m. The hills rise to the height of 1,500 or 2,000 feet, and are clothed from base to summit with the most luxuriant forest trees. The timber grows to a great height, many of the trees being 80 or 90 feet, perfectly straight, and 9 feet in circumference. The indentations of the coast offer several very snug harbors. The lower tracts are well cultivated, and produce sugar cane, bananas, cocoanuts, yams, and numerous other plants and trees. The inhabitants are oriental negroes, and are remarkable for the cleanliness of their villages. Their canoes are neatly formed, but not very large. Dogs, pigs, and turtles are the chief animals. The island produces for commerce fancy woods and tortoise shell, the latter of superior quality.

NEW JERSEY, one of the 13 original states of the American Union, situated between lat. 38° 55′ and 41° 21′ N. and long 73° 58′ and 75° 29′ W.; extreme length 167 m., extreme breadth 96 m.; area estimated at 8,320 sq. m., or 5,324,800 acres. New Jersey is bounded N. and N. E. by the state of New York, from which it is separated on the N. E. by the Hudson river; E. by New York bay and the Atlantic ocean; S. by the Atlantic and Delaware bay; and W. by the states of Delaware and Pennsylvania, from which it is separated by the Delaware river. The state is divided into 21 counties, viz.: Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, and Warren. Trenton, situated on the Delaware at the head of steam navigation, is the capital. Several railroads and the Delaware and Raritan canal have their termini here. Newark is the largest city in the state, and its inhabitants are principally engaged in manufactures. The other most important cities and towns are Paterson, New Brunswick, Camden, Jersey City, Hoboken, Burlington, Princeton, Hackensack, Morristown, Gloucester, Elizabethtown, Rahway, Freehold, Mount Holly, Bordentown, and Salem. The population of New Jersey in 1790 and at subsequent periods was as follows:

Years.	Whites.	Free colored.	Slaves.	Total.
1790.................	169,954	2,762	11,423	184,139
1800.................	195,125	4,402	12,422	211,949
1810.................	226,861	7,843	10,851	245,555
1820.................	257,409	12,609	7,557	277,575
1830.................	300,266	18,303	2,254	320,823
1840.................	351,588	21,044	674	373,306
1850.................	465,509	23,810	236	489,555
1855.................	......	......	...	569,499
1860.................	......	......	...	675,812

Density of population to the square mile in 1850, 58.84; in 1860, 81.24. In 1850 there were of white inhabitants 233,440 males and 232,069 females; of the free colored, 11,800 were males and 12,010 females; and of slaves, 108 were males and 128 females. Deaf and dumb, 189; blind, 207; insane, 379; idiotic, 419. Births, 13,556; marriages, 3,719; deaths, 6,454. Number of families, 89,080; of dwellings, 81,064. Of the white population, 361,691 were born in the state, 43,711 in other parts of the Union, 31,092 in Ireland, 11,377 in England, 2,262 in Scotland, 166 in Wales, 581 in British America, 10,686 in Germany, 943 in France, and 1,785 in other countries, or in places which could not be ascertained. Of the whites, 27 per cent. were under 10 years of age, 22.60 between 10 and 20 years, 18.33 between 20 and 30, 12.68 between 30 and 40, 8.71 between 40 and 50, 5.55 between 50 and 60, 3.21 between 60 and 70, 1.41 between 70 and 80, 0.44 between 80 and 90, 0.04 between 90 and 100; and of 0.03 per cent. the ages were unknown. Of 128,748 males over 15 years of age, there were employed in commerce, trade, manufactures, mechanic arts, and mining, 46,545; agriculture, 32,834; labor not agricultural, 38,383; sea and river navigation, 4,351; law, medicine, and divinity, 1,781; other pursuits requiring education, 2,457; government civil service, 373; as domestic servants, 404; and in pursuits not specified, 1,663. The state is entitled to 5 representatives in congress.—New Jersey has a direct coast line of 120 m., but including bays, islands, and other irregularities, the coast measures 540 m. On the N. E., Raritan, Newark, and New York bays, and the Hudson river, form good harbors for large vessels; but between Sandy Hook and Cape May there is a long stretch of sandy beach, intersected here and there by inlets, and enclosing long shallow lagoons. Barnegat bay and inlet, Little Egg harbor, Absecum inlet, and Great Egg harbor are the principal openings for shipping. Many of the ports which were on this part of the coast at the time of the settlement of the country have been filled up by silt, and others formed; and as the Atlantic surf beats here with unrestrained violence, there are frequent disastrous shipwrecks. The New Jersey shore of Delaware bay consists chiefly of a strip of salt marsh, destitute of harbors. On the Delaware river the land is more elevated. Beside the Hudson and Delaware, already mentioned as forming part of the E. and W. boundaries of the state, the interior is watered by several streams, the most important of which are the Passaic and Hackensack, flowing into Newark bay; the Raritan, falling into the bay of the same name; Maurice river, whose mouth is in Delaware bay; and Great Egg Harbor river, which flows into the Atlantic ocean. These rivers are all navigable for vessels of light draught for distances varying from 10 to 20 m. from their mouths. A number of small streams fall into the Delaware river, but they are not navigable.—The surface of the N. part of the state is hilly and mountainous. The Blue Ridge lies on the N. W. boundary, and a short distance S. of it several parallel ranges of the Alleghany system cross the state in a N. E. direction from Pennsylvania into New York. They bear the local names of Schooley's, Trowbridge, Ramapo, and Second mountains. In the N. E. there are some remarkable elevations, including the Palisades, a range of trap rocks on the Hudson river, in Bergen co., which extend for about 15 m. along the river, with a height of from 200 to 500 feet; and the Neversink hills, a group between 300 and 400 feet high, just below Raritan bay. Elsewhere the surface is generally low and level, except on the banks of the Delaware above Trenton. The whole state S. of a line drawn N. E. from this point to the Neversink hills is an extended plain, nowhere rising more than 60 feet above the sea.—New Jersey is separated into 5 distinct geological divisions, each of which is clearly defined by its peculiar formations, mineral products, and soil. Each has its special objects of interest and value, and all combine to make the state one of the most interesting as presenting so clear a succession of different geological groups, which are also most important for the value of the minerals and ores they contain. The geological formations cross the state in belts from N. E. to S. W. The broadest of these is the most southern one, occupying all the counties on Delaware bay and along the Atlantic coast as far N. as Shark inlet in Monmouth co., and extending inland to a line drawn from this inlet to Salem on the Delaware. The region thus included is a sandy plain covered with forests of pitch pine and oak, and cedar swamps. It is watered by numerous streams, some of which flow into the Atlantic and some into the Delaware. Along the course of two of these are found extensive deposits of bog iron ores, which have supplied 6 or 7 blast furnaces in their own vicinity, beside furnishing large quantities of ore for shipment to other localities. In the last century and the early part of the present, iron ores were transported to furnaces in Plymouth co., Mass., situated in a similar but less important district of bog ores. The streams referred to are the Atsion and Wading and their branches, which unite and flow into the Little Egg Harbor river. On the Atsion and its tributaries the ores spread over an area of 20 m. by about 3 in breadth; and the deposits on the Wading were almost as extensive, though not as productive. A number of other smaller deposits occur along the N. W. margin of the region. Calcareous marls of the miocene period are found in the W. part of Cumberland co., and make the northern outcrop of this formation, which further S. extends through the Atlantic states, and furnishes immense quantities of shelly remains for agricultural uses. In the same county an abundance of good sand for glass making is found, and worked at the glass houses at Millville. There are several other localities of similar sand in this region, and a number of establishments for making glass, one of which is in its extreme N. E. portion. The next formation, coming up from beneath the more recent sands of the coast, is the upper secondary group of alternating sands and clays, known as the greensand or marl district. Excepting a few rare occurrences of a brown sandstone and of a yellowish limestone, filled with remains of coral, a great variety of shells, &c., the mineral beds are wholly formed of loose unconsolidated materials. Numerous beds of valuable greensand (see Greensand) are found throughout this district, and add much to its fertility; and it contains some of the finest agricultural lands in the state. The surface is gently undulating and drained by numerous streams, which flow into the Delaware. The Camden and Amboy railroad lies wholly along the range of this formation, and from Amboy to Bordentown generally 4 to 5 m. from its N. W. boundary. In this district are found the great beds of plastic clay, which are extensively worked near Amboy and at other localities for the manufacture of fire brick.—The next formation should be the great belt of metamorphic rocks which extends from Canada through Vermont and the Atlantic states, and should take in nearly all of northern New Jersey in its range. Its S. margin indeed appears at Trenton, and extends a few miles directly toward the outcrop of the same margin of the formation on the N. side of Staten island, and along New York island; in the other direction the same group spreads out toward Philadelphia and Norristown in Pennsylvania. But from the margin of the greensand formation in New Jersey toward the N. W., the metamorphic group is overlaid and concealed by the red sandstone of the middle secondary. The strata of argillaceous red sandstone which make this formation dip gently toward the N., and occupy a basin of 20 m. in width, which extends from the Hudson river below the highlands S. W. through the middle Atlantic states. This is the region of the red rocks and red sandy soil of New Jersey. Perth Amboy, New Brunswick, Princeton, and Trenton are near its S. E. margin, and its N. W. border follows up the Ramapo from the New York state line to Pompton, and thence on the same course by the S. E. foot of Trowbridge mountain, Mine mountain, and Musconetcong mountain, past New Germantown to Spring Mills on the Delaware. The district is a moderately undulating plain, diversified by numerous abrupt and rugged hills and long narrow ridges with very steep and rocky sides, which are composed of greenstone trap. The longest of these ridges skirts the Hudson river on the W. side and forms the Palisades, and, continuing back of Jersey City, terminates in New York bay. Through this ridge the Bergen tunnel at Hoboken was completed in 1860. The copper ores of New Jersey (see Copper Mines) occur near the line of contact of the sandstone with these greenstone ridges.—The fourth geological group is that of the metamorphic rocks, occupying the region of the highlands, which are a continuation of those from New York. On the New York line the gneissic rocks are largely developed from the Ramapo to Pochuck mountain, where the lower silurian limestone begins to appear in the valleys extending S. W. between the parallel ridges of gneiss and metamorphic slates. The limestones increase in proportion toward the S. and the W., running in continuous lines with the valleys across this portion of the state. Along this belt are found the great beds of magnetic and specular iron ores (see Iron), which have long given support to the important iron establishments of this state, the principal seats of which are at Boonton, Ringwood, Dover, Rockaway, and Philipsburg. The great blast furnaces at the last named place on the Delaware are supplied, as are also many of the furnaces in the Lehigh valley, Penn., with the rich primary ores of northern New Jersey, brought to the Delaware by the Morris canal; and by the same route are returned to the furnaces in the vicinity of the iron mines the anthracites of Pennsylvania. In the limestone at Franklin, near its contact with the gneiss, are found the beds of red oxide of zinc associated with the iron ore called franklinite, for an account of which see Franklinite and Zinc. This locality is on the westernmost border of the metalliferous district, which may be bounded by a line extending from Pochuck mountain to Belvidere on the Delaware. Beyond this succeed the formations belonging to the lower portion of the Appalachian system of rocks. The lower silurian limestones gradually give place to a belt of the Hudson river slates, which reaches as far W. as the Water Gap on the Delaware, to the base of a high ridge of coarse white sandstone, the continuation of the Shawangunk mountain and of its peculiar grit rock, stretching in an almost un broken ridge nearly from Rondout on the Hudson across the N. W. margin of New Jersey into Pennsylvania. On the N. W. side of this ridge, between its base and the Delaware, which forms the boundary of the state, appear in succession a long strip of the red sandstone of the Clinton group, and then the limestone of the upper Helderberg group, filling the valley of the river.—New Jersey offers numerous attractions to travellers, among which are the falls of the Passaic near Paterson; the passage of the Delaware through the Blue mountains, called the Delaware Water Gap; the well known bathing places of Cape May, Long Branch, Deal, Squan beach, Absecum beach, and Tuckerton; Schooley's mountain in Morris co., with a mineral spring on its summit; and Brown's Mills, among the pines, 20 m. from Burlington, a favorite resort for valetudinarians.—The climate varies much in different parts of the state. In the N., where the country is more elevated, it is much colder than toward the S., where the influence of the ocean and a low situation is felt. Fevers and ague prevail in the neighborhood of the marshes, but upon the sea shore and in the hilly regions the climate is remarkably healthy.—Portions of the soil of the great plain of southern and central New Jersey are not naturally fertile; but by the application of marl and other fertilizers the soil is rendered very productive. In certain localities, however, particularly near the sea coast, the soil consists of white sand, and is not capable of much improvement; but even on the coast there is some arable land, and Long Branch and Deal beaches are said to be the only fertile spots immediately on the Atlantic from Maine to Georgia. The N. part of the state is well adapted to cultivation and pasturage. Excellent grazing lands are found among the hills, while the alluvial valleys are highly productive.—The vegetation presents no remarkable features, being similar to that of the central states generally. In the N. are found the oak, hickory, and other forest trees, and in the S. are valuable pine woods, cedar swamps, and a considerable growth of stunted oaks, which, though useless for building purposes, make excellent fuel. The central region is the most thoroughly improved part of the state, and forms a vast market garden from which New York and Philadelphia are in large part supplied. The apples and cider of this locality are famous, and the peaches of the more southerly section are excellent in quality and abundant. Muskmelons, watermelons, sweet potatoes, Irish potatoes, Indian corn, wheat, rye, oats, hay, flax, grass seed, plums, apricots, and cherries are raised; beeswax, honey, and butter are made; and there is also a limited production of barley, tobacco, wine, silk, maple sugar, and hops. Several of the native wild animals, such as the wolf, bear, and deer, are still seen in the forests. —In 1850 New Jersey contained 23,905 farms, valued at $120,237,511, and comprising 1,761,991 acres of improved and 984,955 of unimproved land; value of implements and machinery thereon, $4,425,503. The live stock consisted of 63,955 horses, 4,089 asses and mules, 118,736 milch cows, 12,077 working oxen, 80,455 other cattle, 160,488 sheep, and 250,370 swine; value, $10,679,291; value of animals slaughtered in the preceding year, $2,638,552. The products of agriculture for the year ending June 1, 1850, were 1,601,190 bushels of wheat, 1,255,577 of rye, 3,378,063 of oats, 8,759,704 of Indian corn, 6,492 of barley, 878,934 of buckwheat, 3,207,236 of potatoes, and 508,015 of sweet potatoes; hay, 435,950 tons; clover seed 28,280, and other grass seeds 63,051 bushels; flax seed, 16,525 bushels; flax, 182,965 lbs.; hops, 2,133 lbs.; butter, 9,487,210 lbs.; cheese, 365,756 lbs.; peas and beans, 14,174 bushels; value of market garden products, $475,242, and of orchard products $607,268; beeswax and honey, 156,694 lbs.; tobacco, 156,692 lbs.; wool, 375,396 lbs.; silk cocoons, 23 lbs.; wine, 1,811 galls. The total value of agricultural products in 1850 was $19,322,894, and of home-made manufactures $112,781.—The abundant water power of New Jersey, and its facilities of communication with the great commercial cities of the Union by railroads, canals, and rivers, have greatly developed its manufactures. In 1850 there were 4,108 establishments engaged in mining, manufactures, and the mechanic arts, employing a capital of $22,184,730, and 37,311 hands (28,549 males and 8,762 females), paying in wages $9,202,788 annually, using $21,992,186 worth of raw material, and manufacturing annually $39,713,586 worth of goods. The principal establishments were 21 cotton mills, 41 woollen mills, 10 manufactories of pig iron, 45 of iron castings, 64 of wrought iron, 68 distilleries and breweries, and 133 tanneries. There are numerous manufactories of machinery, locomotives, carriages, saddlery and harness, jewelry, glass, pottery, bricks, paper, small arms, paint, boots and shoes, and hats. The fisheries in the neighboring waters are a source of great profit, particularly those of oysters and shad. —It is difficult to estimate the foreign trade of the state, because Jersey City, which has a large direct trade with foreign countries, is included in the collection district of New York, and much of the rest of the commerce is transacted through Philadelphia. The chief ports represented in the official returns are Newark and Perth Amboy. There are 5 others, engaged principally in the coasting trade. The registered tonnage, June 30, 1859, was 119,616, and the tonnage of the shipping built during the previous year was 5,562. The exports were valued at $21,938, and the imports at $5,046. The entrances were 2 American vessels of 256 tons, and 23 foreign of 3,084 tons—total, 25 vessels, 3,340 tons; the clearances were 6 American vessels of 2,322 tons, and 13 foreign of 1,809 tons—total, 19 vessels, 4,131 tons. The internal traffic is much more important, and the state has a vast transit business, lying as it does on the direct land route between the

North and South. It is traversed by numerous railroads, the names of which, with their present termini and number of miles in running order within the state, as nearly as can be ascertained, are as follows:

	Miles.
New York and Erie, from Jersey City to Dunkirk	32
Branch from Jersey City to Paterson	17
Northern New Jersey, from Jersey City to Piermont	26
Newark and Bloomfield	6
New York and Philadelphia, from Jersey City to Camden	86
New York and Philadelphia, *via* Camden and Amboy, from South Amboy to Camden	62
Branch from Burlington to Mount Holly	6
Central New Jersey, Jersey City to Easton, Penn	75
Freehold and Janesburg Agricultural	11
Morris and Essex, from Newark to Hackettstown	58
Sussex, from Newton to Waterloo on the Morris and Essex	12
Camden and Atlantic, from Philadelphia to Atlantic City	61
Belvidere Delaware, from Philadelphia to Belvidere	94
Branch from Lambertville to Flemington	12
Delaware, Lackawanna, and Western, from New Hampton to Ithaca, N. Y.	28
West Jersey, from Camden to Cape May, completed as far as Woodbury	10
Raritan and Delaware bay, from Port Monmouth to Long Branch	20
Total miles within the state	611

The Morris canal connects Easton, Penn., with Jersey City, and has a large business in conveying coal from Pennsylvania to New York. The Delaware and Raritan canal extends from Bordentown and Trenton on the Delaware to New Brunswick on the Raritan, and affords inland water communication between New York and Maryland.—On Jan. 1, 1860, the state had 46 banks, the condition of which was as follows: Liabilities: capital, $7,884,412; circulation, $2,876,171; deposits, $5,770,534; profits on hand, $1,887,773. Resources: notes, bills of exchange, &c., $16,531,987; specie, $940,701; real estate, $446,202; total, $17,918,890. The principal public institutions supported wholly or in part by the state are the lunatic asylum at Trenton, which was opened in 1848, and in 1858 had 279 patients, and the state prison, also at Trenton, which in 1858 contained 235 convicts.—The school officers' report for 1858 gives returns of 1,651 public schools (16 townships made no returns), and 2,103 teachers (1,235 males and 868 females). The whole number of children taught was 183,543; the average price of tuition per quarter to each pupil was $1.29, and the whole amount appropriated for common school purposes was $526,572.17, of which $338,160.06 was raised by special tax, $86,078.81 received from the state, $40,820.17 received from other sources, and $61,518.63 raised in addition to the regular income for building, repairing, and furnishing school rooms. The receipts of the school fund during the year amounted to $78,835.72, including a balance left over from the previous year. The management of the fund and maintenance of the schools are confided to a board of trustees consisting of the governor, secretary of state, attorney-general, president of the senate, and speaker of the house of assembly. A normal school was established in Feb. 1855, for 5 years, and in 1859 the term was extended another 5 years. It is situated in Trenton, and in Jan. 1859, had 118 pupils and 146 alumni. Connected with it are a model school with 300 pupils, taught by the members of the senior class in the normal school, and the Farnum preparatory school, founded in 1857, and having 120 pupils in 1859. The latter is situated at Beverly, Burlington co. In 1850 there were 77 public libraries in the state, containing 43,908 volumes. The chief collegiate institutions are the college of New Jersey at Princeton, Burlington college at Burlington, Rutgers college at New Brunswick, Seton Hall Roman Catholic college near Madison, the theological seminary of the Reformed Dutch church at New Brunswick, and the theological seminary of the Presbyterian church at Princeton. A plan has lately (1860) been formed for establishing at Burlington, under the auspices of the presbytery of Burlington, an institution for educating, as far as possible gratuitously, the children of foreign missionaries and those preparing for the ministry. According to the census of 1850, New Jersey contained 814 churches, with accommodation for 345,733 persons, and property valued at $3,540,436. Of these churches, 108 were Baptist, 8 Christian, 8 Congregational, 52 Episcopal, 7 free, 52 Friends', 7 Lutheran, 312 Methodist, 149 Presbyterian, 64 Reformed Dutch, 22 Roman Catholic, 2 Tunker, 5 union, 2 Unitarian, 3 Universalist, and 10 minor sects. The number of periodicals in 1850 was 51, circulating 4,098,678 copies annually. Of these, 6 were issued daily, 43 weekly, and 2 semi-monthly; 6 were literary and miscellaneous, 1 neutral and independent, and 44 political.—The present constitution of New Jersey was adopted in Aug. 1844, and came into operation on the 2d of the following month. It secures the right of voting to every white male citizen of the United States, 21 years of age, who has resided in the state 1 year and in the county 5 months next preceding the election. The general election is held annually on the 1st Tuesday in November, and all votes are taken by ballot. The legislature consists of a senate of 21 members, one from each county, elected for 3 years, ⅓ every year, and an assembly of 60 representatives elected annually. The chief executive officers are the governor (salary $1,800 and fees), elected by the people for 3 years; secretary of state (salary $500 and fees), appointed by the governor with the advice of the senate; treasurer (salary $1,000 and fees), elected by the legislature on joint ballot for one year; and the superintendent of schools (salary $500), appointed by the trustees of the school fund for 2 years. Senators and representatives receive during the session of the legislature $2 a day for the first 40 days, and $1.50 a day afterward. The president of the senate and speaker of the assembly are paid $4 a day for the first 40 days, and $2 a day afterward. The judiciary consists of a court of errors and appeals, court of chancery, supreme court, courts of common pleas, orphans' courts, courts of general quarter sessions of the peace, circuit courts, and courts of oyer and terminer. The court of errors and appeals is composed of the chancellor, the judges of the supreme court, and 6 other judges appointed by the governor. They receive $5 a day for each day's attendance. The governor, chancellor, and 6 judges of this court constitute the pardoning power. The chancellor is appointed by the governor and senate for 7 years, and holds a court of chancery 3 times annually; salary $2,500. The supreme court consists of 7 justices, appointed for 7 years from each of the 7 judicial districts. They hold circuit courts and court of oyer and terminer 3 times a year in each county, and are *ex officiis* judges of the court of common pleas, orphans' court, and court of general quarter sessions of the peace of the several counties. They receive salaries of $2,000 each, except the chief justice, who receives $2,100. Judges of common pleas, not exceeding 3 in each county, are also appointed by the legislature for 5 years, and hold court 3 times a year in each county. They are paid $2 a day for each day's attendance.—The revenue of the state in 1858 amounted to $215,458.46, including a balance of $3,058.52 from the preceding year, and the expenditures to $202,412.38, leaving a balance in favor of the state of $13,046.08. The principal sources of revenue are transit duties on railroads and canals ($111,531.92), taxes on capital stock ($69,969.36), and dividends on railroad and canal stocks owned by the state ($16,000). Of the expenditures, $131,431.86 was for ordinary expenses, and $70,970.52 for extraordinary purposes. The public debt on Jan. 1, 1859, was $95,000; annual interest on the same, $5,700; value of productive property owned by the state, $275,528.35; value of property not now productive, consisting of surplus revenue lent to the counties without interest, $764,670.60; amount of school fund (including $11,169.85 unavailable), $448,924.85.—The precise date of the first settlement of New Jersey is not ascertained. The earliest colony was probably planted at Bergen, between 1617 and 1620, by the Dutch of New Amsterdam, who claimed the whole country as a part of the New Netherlands. In 1623 a Dutch company under Cornelis Jacobson Mey and Adriaen Jorisz built Fort Nassau on the E. shore of the Delaware, a few miles below the present site of Philadelphia. Godyn and Bloemart in 1630 purchased land of the Indians at Cape May, but made no settlement. Sir Edmund Ployden obtained a grant of the country on the Delaware from the king of England in 1634, and called it New Albion; and in 1638 a small party of Swedes and Finns purchased land in the same region from the natives, and planted several settlements. The New Haven colony also made purchases along the Delaware about the same time, but it is not certain that they actually effected a settlement. The Dutch and Swedes afterward drove out all the English colonists, and in 1655 the Dutch under Peter Stuyvesant, governor of the New Netherlands, dispossessed the Swedes and sent most of them back to Europe. In 1664 Charles II. of England, disregarding the claims of both parties, granted all the territory between the Delaware and Connecticut rivers to his brother the duke of York, and sent an expedition to take possession of it. New Amsterdam was first conquered, the New Jersey settlements at once submitted, and under the authority of Nicholls, the commander of the expedition and first governor, a patent was granted to immigrants from Long island and New England. Elizabethtown, Newark, Middletown, and Shrewsbury were now founded. In the mean time, however, the duke of York had sold his claim to Lord Berkeley and Sir George Carteret; they named the tract New Jersey in honor of Sir George, who had been governor of the island of Jersey, and had held it for King Charles in his contest with the parliament. They formed a constitution for the colony, and in 1665 sent out Philip Carteret, brother of Sir George, as governor. He fixed the seat of government at Elizabethtown, and by liberal offers to settlers promoted the growth of the country; but his administration was unpopular, the persons who held under Nicholls's patent refused to pay him rent, and in 1670 the people revolted and chose James Carteret, an illegitimate son of Sir George, for their governor. Philip Carteret, however, obtained several concessions and promises from the proprietors, which induced the people to submit again to his authority. The first legislative assembly of New Jersey, which had been held under his proclamation in May, 1668, passed a bill of pains and penalties remarkable for its extreme severity, the punishment of death being assigned for no fewer than 12 offences. In March, 1673, Berkeley sold his interest in the proprietorship to John Fenwick and Edward Byllinge, Quakers. In July of the same year the Dutch recaptured New York, and the surrounding country, including the whole province of New Jersey, at once fell into their hands. New Jersey was called by them Achter Kol. It reverted to Great Britain by the treaty of 1674, and the question now arose whether the title returned to the proprietors or the king. To avoid all difficulty, the king recognized the claim of Carteret, and made a new grant to the duke of York, who also executed a fresh conveyance to Carteret, covering however only a part of the original territory of New Jersey. But before making this conveyance, the duke had included the province in a commission given to Sir Edmund Andros, governor of New York, who refused to recognize the authority of Governor Philip Carteret, arrested all magistrates who would not submit to his own jurisdiction, and finally, on April 30, 1680, carried Carteret himself prisoner to New York. The duke was at last prevailed upon to acknowledge the claims of the proprietors, and in 1681 the government of Andros came to an end. In the mean time Fenwick and Byllinge, to whom Berkeley had sold his share in the province, conveyed an interest in it to William Penn and two other Quakers, Garven Lawrie and Nicholas Lucas; and Fenwick in 1675 established a Quaker settlement at Salem, near the Delaware. He claimed authority as chief proprietor over all that part of New Jersey S. W. of a line drawn from Little Egg harbor to a point on the Delaware in lat. 41° N.; and the province continued for some years to be divided into East Jersey, subject to Sir George Carteret and his heirs, and West Jersey, under Fenwick and his associates. In Feb. 1682, the whole territory was purchased by William Penn and 11 other Quakers. The first governor under the new proprietors was Robert Barclay, a Scotchman, and one of the 12 purchasers, under whom the country became an asylum for the oppressed members of his creed, and for a time enjoyed great prosperity. But the number of proprietors, the frequent subdivisions and transfers of shares, and various other difficulties in the way of good government, soon involved the province in trouble; and in 1702 the proprietors surrendered the right of government to the crown. Queen Anne appointed Lord Cornbury governor of New York and New Jersey, but each continued to have a separate assembly. In 1708 New Jersey petitioned for a distinct administration, and Lewis Morris was appointed governor. The population was then about 40,000. Until the revolution New Jersey was the scene of no important event, and it was never much exposed to the ravages of the Indians. The last royal governor was William Franklin, the natural son of Benjamin Franklin. A state constitution was adopted in 1776, and throughout the revolution the country was frequently the theatre of war. The battles of Trenton, Princeton, Millstone, Red Bank, and Monmouth were fought on its soil. The first legislature met at Princeton in Aug. 1776, and chose William Livingston governor. The federal constitution was adopted by a unanimous vote, Dec. 18, 1787. The state capital was established at Trenton in 1790.

NEW JERSEY, College of. See Princeton.

NEW JERUSALEM CHURCH, a religious body which holds the doctrines set forth in the theological works of Emanuel Swedenborg. These doctrines teach emphatically the oneness of God in essence and in person, and that he is a Divine Man. All life is of love; and God alone has life in and of himself. He is essential love, and thus essential life. All other beings are recipients of life from him. God is also essential wisdom; his wisdom being the form and manifestation of his love, and the means by which it operates. All the works of creation have relation to these two attributes, or to what is good and what is true. Man, being created in the image and likeness of God, has two faculties: a will to receive and be affected by the divine love, and an understanding to receive and be enlightened by the divine wisdom. In the heavens, where God is perceptibly present, the proximate divine sphere appears to the angels as a sun, from which there is a constant emanation of spiritual heat and light. The spiritual heat is, in its essence, love; and the spiritual light is, in its essence, wisdom; and the hearts of the angels are filled with love, and their understandings illustrated with truth, at the same time that their bodies are warmed and their eyes are enlightened by the heat and light of the spiritual sun. The same influence is operating on men in the natural world. It is from this influence, constantly exerted, that all power of loving and willing, and of perceiving and thinking, is derived.—In the primeval state of man, which in the Sacred Scriptures is represented by the term Adam, the divine influence was received into the will and understanding without being corrupted or perverted by actual or hereditary evil. Divine truth was inscribed directly on the heart. The natural objects by which men were surrounded were to them full of spiritual meaning and significance, and were thus a source of constant delight and instruction. It was also permitted to them to be consciously present in the spiritual world, and to have open communication with the angels of heaven. They constantly perceived and acknowledged that all their love and all their intelligence or wisdom were from the one only source of love and wisdom. But an essential part of their nature was freedom; and, being free, they had the power of averting themselves from the only source of genuine love and life. This aversion, which is represented by the fall of Adam, took place more and more through successive generations, till at length men ceased to regard God as the only source of their life, and imagined that they lived of and from themselves, thus making themselves gods. In this way evil was introduced into the world, and has been transmitted from generation to generation; for the spiritual part of the child, as well as the material, is derived from his parents, and partakes of their quality; the internal being from the father, which by conception is clothed with a corresponding external nature from the mother. The will having become corrupted, men have inherited tendencies to all the evils forbidden in the decalogue. These evils become sins only when they are indulged and committed; but they must be seen and renounced by repentance, reformation, and regeneration, before a state of heavenly life and happiness can be attained.—When mankind had thus fallen, the divine love prompted and the divine wisdom provided the means of their redemption and restoration. It was foreseen and foretold that Jehovah would come into the world to seek and to save that which was lost. All his providential dealings with men looked to this great event, which in the fulness of time was accomplished. But, in order to see the necessity of the advent of Jehovah into the world, it is important to understand the relation between the spiritual world and the natural world, and something of the condition of both at the time at which this event took place. The spiritual world exists within the natural, as the soul within the body. There is the most intimate relation and connection between the two. Man, as to his soul, is a spirit actually existing in the spiritual world, and is most closely associated with the inhabitants of that world. Their influence is as necessary for his mind, as the heat and light and surrounding atmosphere are for his body. If it should be wholly withdrawn from him, he would at once be deprived of his spiritual faculties, and indeed of life. The spiritual world consists of the heavens, of which there are three, one within, or one higher and purer than the other; of the hells, of which there are also three, standing in direct opposition to the heavens; and of an intermediate place or state between the heavens and the hells, called by Swedenborg "the world of spirits," which is understood by the great gulf spoken of in Luke xvi. Of the three heavens, the highest is called by Swedenborg heavenly or celestial; the middle, spiritual; and the lowest, natural. The heavenly heaven is governed by love, and essentially by love to the Lord; the spiritual heaven by truth, which manifests itself and operates through love to the neighbor; in the natural heaven these loves still govern, but less perfectly, and in a very subordinate degree. In each of the heavens and in each of the hells, as well as in the world of spirits, there are innumerable societies, each society consisting of those who are governed by the same ruling love, and are drawn and held together by a similarity of interior life and character. The heavens are founded on the two great commandments of love to God and the neighbor. All the angels, being under the constant influence of these loves, constitute a kingdom of uses; each society and each individual having a peculiar function or office to perform for the use and benefit of the rest; and all working together in the most perfect freedom, and with affection and delight, in harmonious connection, like the different organs or members of the same human body. They thus make one Greatest Man, within which dwells the Lord himself, giving life and intelligence to, and ruling in the heart of each and of the whole. The hells are the opposites of the heavens; the evil spirits of which they consist being under the influence of the loves of self and of the world, which are directly opposed to the love of God and the love of the neighbor. These loves are essentially discordant and distracting in their nature, and tend to bring those in whom they exist into conflict with each other, and to produce results directly opposite to those exhibited in the heavens. Into "the world of spirits" all persons first enter immediately after death. It consists of those who have passed out of the natural world into the spiritual, and who are not yet fully prepared either for heaven or hell. In this world of spirits men are as to their spirits, even while yet alive on earth. Above them are the heavens; beneath are the hells; and about them on all sides is the world of spirits. By these influences above, beneath, and about them, men are held in equilibrium, and thus in freedom to turn either in one direction or the other. If this freedom should be lost or destroyed, reformation and regeneration would be impossible. At the time of the advent of the Lord, such was the accumulation of the evil in the world of spirits, that this equilibrium was in danger of being destroyed, and human freedom lost. The hells had, as it were, risen up out of their proper places; devils were taking possession of the souls and bodies of men; and the human race was threatened with impending destruction. The work of redemption consisted in rolling back this tide of evil; in casting out the devils and subjugating the hells; and thus restoring and preserving human freedom, which would otherwise have been lost. By this means it was made possible for all to keep the commandments of God, and to attain to heavenly life and happiness.—It is important here to understand the nature of the divine power or omnipotence. The power of God is the effect of the operation of the divine will and understanding, or of the divine love and wisdom, and must of course be limited by them; or, in other words, it is not possible for God to do any thing which is opposed to his own nature, or any thing which is not good and wise. His love extends to all created beings, even to those who are in the hells; as "he maketh his sun to rise on the evil and on the good." The effect of his government over evil spirits is to keep them within bounds, and to make them less hurtful to each other, and less miserable than they would be otherwise. To restore order, therefore, to the spiritual world, he must adopt the method which his own divine love would prompt, and his own divine wisdom provide. The wheat must be separated from the tares without the loss of the least portion of it; and this must be effected without doing violence to the freedom of any. For this purpose, Jehovah clothed himself with that part of human nature which is derived from the mother, consisting not only of a material body but also of the external parts of the mind. The everlasting Father could not be tempted; but the assumed humanity, deriving from Mary tendencies to evil, could meet evil spirits on their own plane; was subject to temptations; and as these temptations were resisted, the divine influence and power were brought down into that region where their presence was needed, in order to remove the disorders which had arisen in the spiritual world, and to restore and preserve the freedom of the human mind. Had the essential Divinity descended without being thus veiled and clothed, it would have been like a consuming fire, both to the evil and to the good who were still connected with the evil. All evils have a connection and relationship with each other, as well as all evil spirits; and in the evils of the assumed humanity the indwelling Divinity could meet, resist, and subjugate all the hells. At the same time, and by the same means, the humanity was glorified, or made one with the Father. All that was derived from Mary was gradually put away, so that he no longer acknowledged her as his mother; and its place was supplied by the divine life, affections, and thoughts which flowed down from within. At first there was opposition between the indwelling Divinity and the external humanity. The will of the latter was not in harmony with the will of the former, but opposed to it. The assumed humanity was the seat of the most grievous trials and temptations. To this the words apply: "I seek not mine own will, but the will of the Father which hath sent me." It was necessary that it should give up its own peculiar life; and as soon and as fast as this was done, it was brought into harmony and union with the Father within. In this way the humanity was glorified, or made divine, and thus became a perfect medium of the essential Divinity. This work was going on during the whole period of the sojourn of the Lord on the earth. The last and most grievous temptation was that on the cross. The work was then finished, or nearly so; for the union of the Divinity with the humanity was not perfect till the final ascension. That which to the external observer appeared to be death, was really the lifting up of the humanity, and the uniting of it more fully with the Father, that it might draw all men unto itself. Even the material body was gradually changed into a divine natural body. Nothing of it remained in the sepulchre; and after the resurrection it was no longer subject to the laws of matter, but was present with the disciples, the doors being shut. As the humanity was made divine, all power was given to it in heaven and on earth; for it is in and through the glorified humanity alone that the divine love and wisdom operate.—By assuming humanity, and glorifying it, Jehovah not only subjugated the hells, and thus performed the work of redemption, but restored order to the heavens; for the angels are not good and wise of themselves, but are only recipients of love and wisdom from him. They are not perfectly pure and beyond the reach of evil influences, but are better than men because they are more humble, and more willing to acknowledge the source of their goodness. In removing the evils from his humanity, the Lord at the same time made the heavens more receptive of his spirit. The influence of the work of redemption, therefore, extended not only to men, but to angels; and by bringing down his divine life into the lowest plane, even to the ultimates of the natural world, and putting on the divine natural or Divine Humanity, Jehovah clothed himself with power to hold the hells in subjection for ever. By the accomplishment of this work he was able to reach and affect the minds of men with a new influence and power; agreeably to the words: "The Holy Spirit was not yet, because that Jesus was not yet glorified;" and after the resurrection "he breathed on his disciples, and saith unto them, Receive ye the Holy Spirit." He also made himself visible, and thus became a distinct object of thought and affection; that by loving him and being conjoined to him, men might have eternal life and happiness. The infinite Father, in himself invisible and inaccessible, thus became "Immanuel, God with us." The Holy Spirit is an emanation of love and wisdom from the Divine Humanity, like heat and light from the sun. The essential Divinity, the Divine Humanity, and the Divine Proceeding—Father, Son, and Holy Spirit—like soul, body, and operation in man, constitute the one triune God.—Such is a brief statement of the New Church doctrine of redemption. The accomplishment of this work has rendered it possible for all men to be saved; but their salvation cannot be effected without coöperation on their part. There is in the spirit of every person an internal man and an external man, or a spiritual mind and a natural mind. At birth, the infant has no distinct thoughts or affections. He first acquires the use of his senses, which is in itself a great work. The external, sensuous parts of the mind are next opened; and he gradually attains the power of willing and thinking. It is a long time before the higher faculties are developed. These are at first concealed from his view; and in this we have an image of the state of the Lord during infancy, when the Father was deep within, and (perhaps) not at first distinctly recognized by the assumed humanity. During this period of infancy and childhood man is kept in a state of dependence upon others, especially his parents, and is guarded by angels, whose province it is to cherish and preserve all innocent and kindly feelings and thoughts. This period of long dependence upon others, which distinguishes man from all the animal creation, is of divine providence, that he may be thereby prepared to feel and acknowledge his entire dependence on his heavenly Father: which is an indispensable condition of eternal life and happiness. The hereditary evil tendencies of his nature are at first in a great measure quiescent, but are permitted gradually to appear, as he is able, if he is faithful to his duty, to resist them and put them away. The natural mind is developed by things pertaining to this world, including the arts and sciences, languages, history, &c. If the development goes no further than the natural mind, the rational faculty must be narrow in its views, liable to be warped by evil desires, and, wanting that interior illumination which can come only from above and within, comparatively blind, and constantly exposed to false conclusions and inferences. The spiritual mind is opened only with those who shun evils as sins against God; with others it remains closed. As this mind is opened by shunning evils as sins, there is given an affection of spiritual truth, and with the affection an internal perception of what is true. The truth is then received rationally and in freedom. The evidence of miracles is not only not required, but would be injurious; because the external mind would thereby be compelled to admit that for which the internal affections were not prepared; whereas the truth can be fruitful in good works, and subserve its highest use, only when it is implanted, in freedom, in the heart and life. As the spiritual mind is opened, it is capable of discerning spiritual truths, as the natural mind discerns natural truths. The work of regeneration consists in bringing the external, natural man into subjection to and correspondence with the internal, spiritual man. It is an image of the glorification of the humanity of the Lord. He stands at the door of the mind of every one and knocks; but he cannot enter unless the person first opens the door, by removing the evils of the external man, which is done only by shunning them as sins against God. If they are shunned for any other reason, they are not removed. A person may abstain from committing evils on other grounds, as for instance from a regard to his own reputation; but in this case the disposition to commit them will remain. The evil must be shunned not only in the act, but in the thought and affection; for therein is its seat and origin. But it must be remembered that "none is good save one, God;" that he alone is able of himself to resist evil; that all the power of angels and men is derived from him; and that evils should be shunned as of ourselves, but with the constant acknowledgment that the ability to shun them is derived from him alone. If this is done, and they are put away internally as well as externally, then, as the evil affections are removed from the mind, the Lord will be present, and communicate the opposite good affections in their place. He glorified his humanity in order that he might perform a similar work in man; and in proportion as any one follows him in the regeneration, he will be the better able to understand the process of the Lord's glorification, for he will have an image of it in himself.—The internal or spiritual, and the external or natural mind have been mentioned; but, strictly speaking, there are three degrees in the human mind, the one within or above the other. These are called the heavenly, the spiritual, and the natural, corresponding to the three heavens above described. With all other animals, the two higher degrees are wanting; they are therefore incapable of having human affections and thoughts; they have not in their nature the possibility of thinking of and loving the Lord, and thus being conjoined to him; and therefore they do not live to eternity. Degrees, as understood in the New Church, are of two kinds, and are called continuous and discrete. Continuous degrees are degrees of more or less in the same thing, like the degrees of density in the atmosphere, or of light and heat from morning to evening. Discrete degrees exist between things internal and things external; which so differ in their nature, that the one cannot by any possibility become the other. Thus the soul and the body differ by discrete degrees. Matter may be more or less refined, but by no possible sublimation can it be made spirit. Between the internal and the external, in things separated from each other by discrete degrees, there is the relation of correspondence; and communication between them exists by the influx of the former into the latter. The relation is similar to that of cause and effect. Thus the body corresponds to the spirit; and the spirit communicates with and actuates the body, to which it corresponds, by influx. So also with the parts of the body. The eye corresponds to the understanding; and the action of the understanding into the eye, which causes vision, is influx. The heart corresponds to the will; and the involuntary action of the will into the heart, which causes its pulsations, is influx. The three heavens, as also the three planes or provinces of the human mind, are separated from each other by discrete degrees; and the relation and connection between them is by the influx of the higher into the lower, which takes place because between them there is correspondence. The natural world is separated from the spiritual by discrete degrees. All things of the former have their prototypes in the latter, to which they correspond; and the relation and connection between them is by influx. All animal and vegetable life depends upon this influx from the spiritual world. At the same time, the natural world with its inhabitants is necessary for the spiritual world and its inhabitants, and serves as a foundation on which they rest. Thus there is the most intimate relation and mutual dependence between them.—The same law of correspondence explains the Sacred Scripture. It is a divine work, and is written in a manner analogous to that in which the world is created—according to the correspondence of natural things with spiritual. It has a spiritual sense throughout within the literal, as the spiritual world exists within and animates the natural world, and as the soul exists within and animates the body. This spiritual sense does not relate to things pertaining to the natural world, but wholly to those which are spiritual; thus, to regeneration, to redemption, and the glorification of the humanity of the Lord. The recorded events of the history of the Israelites were providentially ordered for this purpose; and whatever may be the case with the letter, the spiritual sense flows on in a harmonious and consistent series, being represented by the coat which "was without seam, woven from the top throughout;" while the literal sense, like the outer garment of our Lord, may be torn into pieces, and distributed among men, as they choose one or the other fragment. There is also in the Word a sense still more interior than the spiritual; it is called the heavenly. It cannot be easily unfolded, not being so much the subject of thought as of affection. These three senses answer to the three degrees in the human mind. The Sacred Scripture exists in the heavens, and is the inexhaustible source of wisdom to the angels. In its first origin it is altogether divine; and as it descends through the heavens, it is understood by the heavenly angels in the heavenly sense, and by those who are spiritual in the spiritual sense. The literal sense contains the other senses, and is the foundation on which they rest; as the natural degree of the mind contains the spiritual and celestial, or as the body contains the soul. The Word is thus divinely inspired and holy throughout. Its inspiration is a present reality. The devout reader is brought into immediate and direct connection with the angels, although unconscious of their presence; and these angels are in the perception of the interior senses, which communicate with the literal by influx and correspondence; and within the whole is the divine influence imparting love and light both to angels and men. The Sacred Scripture differs from all other books, as what is divine and infinite differs from what is human and finite, and as the Lord differs from all men. It is called a testament or covenant, because it brings those who truly keep the commandments, by shunning the evils therein forbidden as sins against God, into communion and interior union with him. It is thus the divinely appointed means by which men are conjoined to the Lord, and consociated with the angels. Without this provision, the human race would perish.—All knowledge of God, of spiritual things, and of a future state of existence, is derived, either directly or indirectly, from revelation. The various forms of idolatry, wherever they are found, are the perversions of what was once true and pure religion. The external objects, which were originally prized because they brought to mind the internal things to which they corresponded, became, when all affection for and knowledge of what is spiritual was lost, objects of worship. Thus the sun, which represents the Lord, and which at first only reminded men of his glory and his goodness, was at length itself worshipped by those who ceased to raise their thoughts above their senses. There was a written revelation previous to that given to the Israelites. The "Book of the Wars of Jehovah" spoken of in Numbers, and the "Book of Jasher" referred to in Joshua and Samuel, were parts of this Word. From this also Moses copied the first chapters of Genesis, including the account of the creation, of the flood, &c.; which, though written in the historical style, are not true in the literal sense. Adam, Seth, Enoch, Noah, Ham, Shem, Japheth, &c., did not exist as individuals, but signify respectively churches, or states of mankind or of religious belief. True history begins with the generations of Terah, the father of Abraham, in the 11th chapter of Genesis. Some of the books generally supposed to constitute a part of the Sacred Scriptures have not the internal sense in a connected series, and are not inspired according to the meaning of inspiration in the New Church. The estimation in which these books are held by this church does not vary materially from that with which they are regarded by others; but the value and importance which it attaches to those which are inspired is so far beyond any thing that the world has hitherto imagined, that these are regarded as comparatively of much less importance. The books which constitute the inspired Word, in the sense just mentioned, are the following: in the Old Testament, Genesis, Exodus, Leviticus, Numbers, Deuteronomy, Joshua, Judges, 1st and 2d Samuel, 1st and 2d Kings, the Psalms, Isaiah, Jeremiah, Lamentations, Ezekiel, Daniel, Hosea, Joel, Amos, Obadiah, Jonah, Micah, Nahum, Habakkuk, Zephaniah, Haggai, Zechariah, Malachi; and in the New Testament, the four Gospels and the Book of Revelation.—The divine providence is the government of the divine love and the divine wisdom of the Lord, and is in all things, even the most minute and particular. It always looks beyond things temporal and finite, and regards the salvation and eternal welfare of man. Its great end is a heaven from the human race. For this purpose man was created by God into his own image and likeness, capable of receiving his love and wisdom freely and rationally, with an acknowledgment of him from whom they proceed. No finite created being can be more than this, though the human and angelic mind is capable of being enlarged and perfected to eternity. All angels are men in an advanced stage of their existence. There is not an angel in the heavens, nor an evil spirit in the hells, who did not commence his existence in this or in some other natural world; and there is no human being who is not already, or will not become, either an angel in heaven or an evil spirit in hell. The natural world is designed to be the seminary of heaven. After death the real man continues to live on as before. He has lost nothing but the material body, which derived all the vitality it at any time possessed from the spirit. Death, or the withdrawal of the spiritual from the material part, is not an instantaneous or very sudden process. It is usually fully accomplished on the third day after respiration ceases. The man then lives only in the spiritual world, and is in all respects the same as he was before death; except that he is clothed with a spiritual body instead of a material one, which is adapted to the world in which he now lives, as the material one was to this. He has the same affections and thoughts and capacities as before. Nothing of his life in the world is lost or forgotten, but all is laid up in his interior memory. He sees, hears, and handles things in that world, as he formerly did the things of this world. He is surrounded by objects similar in appearance to those which he has left behind him; and they are altogether real and substantial, though not material. But he has passed into a world of substantial realities, in which the laws of time and space differ greatly from those in this world. Spiritual distance is caused by dissimilarity in the life and affections; and the successive changes in them produce the appearance of longer or shorter duration. Time and space are no longer masters, but servants; being appearances produced by the internal state of the angels and spirits, and subject only to spiritual laws. All things in that world exist in relation to the spiritual sun, as all things in this exist in relation to the natural sun. As it is with time and space, so it is with all the external objects by which the angels and spirits are surrounded. These correspond to their interior life and affections, and depend upon them. The imagination of man cannot conceive of the beauties of paradise; but the kingdom of heaven exists around the angels, because it exists within them. It is not a place into which any one may be permitted to enter in an arbitrary manner. He cannot be in heaven externally without being there internally, or without having heaven in himself. When any person dies, and is raised up in the spiritual world, he is received by the angels with the most tender love. They perceive his real state and character, and are ready to instruct him in heavenly things so far as he is willing to be so instructed, and are glad to do him all the good in their power. It is well known that a very large proportion of the human race die during the period of infancy and childhood. All these are saved; for they have not confirmed themselves in evil, and are capable of being so instructed and educated by the angels, that they may be prepared for heavenly life and happiness. As they are so led, and their hereditary evils are subdued and removed, they grow to maturity in stature, as in goodness and wisdom, and at length become angels. There are places of instruction for this purpose in the "world of spirits." Those who die at mature age are judged according to their works. The intentions and the acts of a person are inscribed on his interior memory. This is the book of his life. After death all power of dissimulation is taken away; and this book is opened, and he is judged according to the things therein written. If he is internally good, having acted from a love of the Lord and the neighbor, whatever exists in the external parts of his mind which does not agree with his real character is put away, and he is prepared for heaven. If he is internally evil, having confirmed himself in the love of self and the world as his ruling principle of action, all his seeming goodness is removed by the current of his own affections; and of his own choice he seeks the company of those who are in a state similar to his own, and finds them in the hells. As the tree falls, so it lies. The inmost state of his life, or his ruling principles, can never be changed, however their manifestation may be controlled or suppressed through punishment or the fear of it, or by other similar means.—It was said that the earth was designed to be the seminary of heaven. For the accomplishment of this end, it is not only necessary that men should be born, but that they should be so constituted and so circumstanced, that the great purpose of their existence may be attained. For this end the marriage of one man with one woman is of divine order and appointment. It has its origin in the two constituents of the divine nature, love and wisdom; and the male and female minds are so formed as to be the counterparts of each other, and, when united by true conjugial love, to constitute one mind. They can be so united only when the spiritual mind is opened. They are then conjoined to the Lord by the reception and acknowledgment of his influence, and by a life according to his commandments; for he is the Bridegroom, and the church is the Bride; and true conjugial love descends from this heavenly marriage. The distinction between the sexes, having its origin in the mind, must continue to eternity. The husband partakes more of the intellectual character, and the wife more of the affectional; and by true marriage the love of himself and of his own intelligence is taken out of the man, where it is evil, and shows itself in pride or vanity, and is transferred to the wife, where it is good and useful. The married partners, not being divided in their affections, and never forgetting or losing their love for each other, will feel and think chastely and purely, and mutually aid each other in the work of regeneration and the uses of life. Their love of their children will partake of the quality of their love of each other, and will continually regard and seek their spiritual good and happiness. Such love is now extremely rare; but it once prevailed on the earth, and it is the constant effort of Divine Providence to restore it. As it is restored, the hereditary evils which have been transmitted from generation to generation will be gradually softened and extirpated. The angels live thus united, husband and wife, in perpetual youth, innocence, and peace; finding their delight and happiness in the performance of useful works, each fulfilling the functions for which he is specially adapted. As has been said, it is the order of Providence that they should commence their existence in some material world, and marriages in the heavens are without prolification, or the production of children. But, being founded on the union of love and wisdom, or goodness and truth, a continual increase of love and wisdom flows from this union as its legitimate offspring. In the language of Swedenborg ("Apocalypse Explained," No. 993): "That love truly conjugial contains in itself so many ineffable delights that they exceed number and expression, may also be evident from this, that that love is the fundamental love of all heavenly and spiritual loves, since by it man becomes love; for from it spouse loves spouse, as good loves truth and truth loves good; thus, representatively, as the Lord loves heaven and the church; such love cannot exist but by marriage, in which the man is truth and the wife good. When man has become such love by marriage, then also he is in love to the Lord, and in love toward the neighbor; consequently in the love of all good, and in the love of all truth. For, from man as love, nothing but loves of every kind can proceed; hence it is that conjugial love is the fundamental love of all the loves of heaven. Now because it is the fundamental love of all the loves of heaven, it is also the foundation of all the delights and joys of heaven; for all delight and joy is of love. It follows that heavenly joys, in their order and in their degrees, derive their origins and causes from conjugial love. From the felicities of marriage it may be concluded as to the infelicities of adulteries; namely, that the love of adultery is the fundamental love of all infernal loves, which in themselves are not loves but hatreds; consequently that it is the love of adultery from which flow forth hatreds of every kind, as well against God as against the neighbor; in general, against all the good and truth of heaven and of the church. Hence to it belong all infelicities; for from adulteries man becomes a form of hell, and from the love of them he becomes an image of the devil."—Another essential means by which the great end of creation, a heaven from the human race, is effected, is the church. The church is designed to be the gate of heaven. It is the foundation on which the heavens rest; and it is necessary that there should always be an unbroken connection between them. Without this the human race would perish. It has been said that conjunction with the Lord and consociation with the angels is effected by means of the Sacred Scriptures. But for this end it is necessary that there should be a church by which the Lord is acknowledged, and the Sacred Scriptures received and understood. Hence there has always been a church on the earth. "The angelic heaven cannot be separated from mankind, nor mankind from the angelic heaven; wherefore it is provided by the Lord that both the angelic heaven and mankind mutually assist and support each other." The church is to the rest of the human race what the heart and lungs are to the body. There have been four churches, or dispensations, on the earth, which were entirely distinct in their character from each other. As one has gradually declined till it finally became extinct in consequence of the loss of charity and faith, another, distinct in its character, has been raised up to take its place. At the end of every church there has been a general judgment in the spiritual world, of those who have lived during that dispensation; and a new heaven has been formed preparatory to the formation of a new church. At that time vast multitudes have been collected together in the world of spirits, consisting of those who have died during the existence of the church which has come to an end, and who are of such a character that the good could not be separated in freedom from the evil till the final consummation. It should be understood, however, that all who had died in infancy and childhood during this period were already in the heavens, as well as many others whose lives on earth had prepared them for the society of angels. The consummation of the first or most ancient church is symbolically described in Genesis by the flood; at which time a judgment was accomplished, and the next succeeding church established, which is called the ancient church. Under the Israelitish dispensation, which was the closing period of the ancient church, conjunction with the heavens was not effected by the reception of what is good and true into the heart and life, but by means of outward observances which represented things internal and spiritual. When the Lord was on the earth, a second general judgment was accomplished in the spiritual world, and the first Christian church established. This church continued till the year 1757, during which year the last general judgment was accomplished also in the spiritual world on those who had lived during that dispensation, and the New Jerusalem church was formed. The two essentials of this church are the acknowledgment that the Lord Jesus Christ is the only God of heaven and earth, and that there is conjunction with him by a life according to the precepts of the decalogue. The New Jerusalem, being the last and crowning dispensation, founded on the revelation of the spiritual sense of the Sacred Scriptures, which is an infinite and exhaustless source of divine truth, will not come to an end. It will continue to increase in the knowledge and love of the Lord for ages of ages. There will consequently be no other general judgment. All who die are judged soon after passing into the spiritual world; and none now remain in the "world of spirits" for a longer period than 30 years. The wonderful changes, revolutions, and improvements that have taken place during the last century, and make this period the most remarkable in the world's history, are the fruits of the last judgment; by means of which the minds of men were liberated from spiritual bondage, and opened to new, stronger, and higher influences. The revelation of the spiritual sense of the Sacred Scriptures is signified by the coming of the Lord "in the clouds of heaven, with power and great glory." By clouds is there denoted the literal sense of the Word. The spiritual sense of the Apocalypse or Book of Revelation relates particularly to the consummation of the Christian church, to the last judgment, and to the establishment of the new heavens and the new church, which is called the New Jerusalem. This is distinct from the first Christian church, as the first Christian was distinct from that which preceded it. In the language of Swedenborg: "This second coming of the Lord is effected by means of a man, before whom he has manifested himself in person, and whom he has filled with his spirit, to teach the doctrines of the New Church through the Word from him. That the Lord has manifested himself before me, his servant, and sent me on this office, and that, after this, he opened the sight of my spirit, and thus let me into the spiritual world, and gave me to see the heavens and the hells, and also to speak with angels and spirits, and this now continually for many years, I testify in truth; and also, that from the first day of that call, I have not received any thing which pertains to the doctrines of that church from any angel, but from the Lord alone while I read the Word."—In the early period of the human race, represented by the term Adam, men were permitted to enjoy open communication with the spiritual world, and to converse with the angels of heaven. But after the mind of man became perverted and corrupted, if this intercourse had been allowed to continue, it would have been attended with great spiritual danger and harm, threatening even the extinction of the race. It was therefore of divine providence that this communication should cease, and a thick veil be drawn between the spiritual world and the natural; so that a knowledge of even the existence of the former, and of its realities, should be altogether obscured, and in a very great measure lost. The spiritual senses of the prophets, however, were opened; for which reason they were called seers. This was to the intent that they might be able to write the books of the Sacred Scriptures, which consist in good part of things heard and seen in the spiritual world, which they were commanded to record. The spiritual senses of Swedenborg were opened, that he might thereby be enabled to understand and disclose the laws by which the Scriptures were written, and reveal their spiritual sense, and thus be the means through whom the second coming of the Lord was effected. But all attempts to have open communication with departed spirits, by magic, witchcraft, or necromancy, are repeatedly and emphatically prohibited in the Old Testament. These prohibitions still remain; and the phenomena of spiritism, so far as they are real, come under these prohibitions, and are disorderly and dangerous. Visions have doubtless been occasionally granted in the different ages of the world; but, when orderly and useful, they have not been sought for, but have been freely given by the providence of the Lord. Swedenborg was, of all men, in a position to see clearly the dangers attending open communication with the spiritual world, and frequently warns his readers against these dangers. Every man is attended by two angels from heaven, and two evil spirits from hell. The angels perceive the quality of his affections and thoughts, and are constantly endeavoring to avert evil influences, and impart those which are good. But they have no perception of man by sight, or touch, or hearing. The evil spirits do not know that they are with man; but they are attracted to him by that which is evil in the sphere of his life, into which they enter, not knowing that it is not their own. If he shuns evils as sins against God, they can do him no harm; but their influence will be useful to him, in enabling him to see and remove the evil tendencies of his nature. By means of these attendant angels and spirits, he is connected with the heavens above and the hells beneath, and is held in freedom to turn either to the one or to the other.—Baptism and the Lord's supper are holy sacraments of the church, representing and signifying things spiritual and divine, and designed as the means of communicating to man those blessings of which they are the outward symbols. Baptism represents regeneration, which is effected by cleansing the spirit from evils by the application to the mind of those truths which are signified by water, which are the truths of the literal sense of the Word. It is a sign which is perceived by the angels, and is the divinely appointed means by which the person baptized is brought under those spiritual influences best suited to his state, and best adapted to promote that which is signified by that sacrament, namely, his regeneration. It should precede the Lord's supper. The latter sacrament is the most holy act of worship. The bread, which is called the flesh of the Lord, corresponds to his divine love or goodness; and the wine, which is called his blood, to his divine wisdom, or to the interior truths of his Word. Those who receive them worthily, receive also those things which they represent, and are by the act brought into consociation with the angels of heaven, and into conjunction with the Lord himself.—The above is an imperfect sketch of the doctrines of the New Jerusalem church, as it is believed that the writings of Swedenborg teach, and the members of the church hold them. These doctrines are fully set forth in his theological writings, an enumeration of which will be found in the article under his name. It will be seen that they are not of a character to obtain a rapid reception. During the life of Swedenborg the number of those who received them was extremely small, at which he does not seem to have been in the least degree surprised or discouraged; and for their slow reception he gives distinct and sufficient reasons. A century has elapsed since the commencement of the New Church, and the number of those who openly profess to be receivers of its doctrines, and members of the church, is still comparatively small. It is greatest in the United States and in England. These doctrines find, however, zealous advocates in France, Germany, Sweden, Switzerland, and indeed in almost every portion of the Christian world. In England there is a general conference of the New Church, which holds an annual session in different parts of the kingdom. In the United States there is also a general convention of the New Church, which meets annually in different places. There are church societies in both countries not in connection with these organizations. The general conference has published a liturgy which is very generally used in England. A liturgy has also been published, and from time to time revised, by the general convention of the New Church in the United States. Several periodicals, both in England and America, are devoted to the elucidation and dissemination of its doctrines, and various able writers have published works for the same purpose. In the public worship of the New Church in this country, generally speaking, no prayer but the Lord's prayer is used. The music consists mostly, and in many places entirely, of chants and anthems, the words of which are taken wholly from the Sacred Scripture. The liturgy of the general convention, beside the liturgical portion of the book, contains 240 pages of scriptural selections, with suitable chants and anthems. The words of Scripture are regarded by the New Church as possessing an influence and a power in worship, whether in prayer or singing, altogether above those of any merely human composition.

NEW KENT, a S. E. co. of Va., bounded N. E. by the Pamunkey river, and S. W. by the Chickahominy; area, about 200 sq. m.; pop. in 1850, 6,064, of whom 3,410 were slaves. Its surface is moderately uneven, and the soil light and sandy. The productions in 1850 were 178,813 bushels of Indian corn, 37,846 of oats, 13,650 of sweet potatoes, 5,233 lbs. of wool, and 38,081 of butter. There were 12 grist mills, 10 churches, and 300 pupils attending public schools. The value of real estate in 1856 was $917,121, being an increase since 1850 of 29 per cent. Capital, New Kent Court House.

NEW LANARK. See LANARK.

NEW LEBANON, a N. E. township of Columbia co., N. Y.; pop. in 1855, 2,329. In the E. part is a large Shaker settlement of from 500 to 600 persons (including a few in the adjoining town of Canaan), owning about 4,000 acres of land. They have a large meeting house, a laboratory, a grist mill, 5 saw mills, 2 machine shops, 8 dwellings, and a stone barn 196 by 50 feet, said to be the most perfect barn in the country. Ventilation is thorough, and the manure is deposited in a vault at the end of the barn, for which purpose railroads pass the whole length of the building on either side. Their principal occupation is the raising and putting up of medicinal plants and garden seeds, the preparation of roots and extracts, and the manufacture of brooms and baskets. Of garden seeds and medicinal articles the annual production is about 200,000 lbs. The township contains 8 places of worship, viz.: 1 Baptist, 1 Christian, 3 Methodist, 1 Presbyterian, 1 Roman Catholic, and 1 Shaker.—NEW LEBANON SPRINGS, a village in the above township, 25 m. S. E. from Albany (pop. in 1855, 275), is noted for its thermal springs. There are several springs, the largest of which is 10 feet in diameter and 4 feet deep, and discharges 16 barrels of water per minute. According to an analysis made by Dr. Meade, 1 pint of water contains 0.25 gr. chloride of calcium, 0.44 gr. chloride of sodium, 0.19 gr. carbonate of lime, and 0.37 gr. sulphate of lime. Gas, composed of 89.4 parts nitrogen and 10.6 parts oxygen, is constantly given out in the proportion of 5 cubic inches for every pint of water. The discharge of this spring supplies several baths, and keeps 2 or 3 mills running throughout the year. The waters have a uniform temperature of 73° at all seasons. The village contains 3 churches, 4 hotels, and a female seminary.

NEW LEON, or NUEVO LEON, a central state of Mexico, bounded W. and N. by Coahuila, E. by Tamaulipas, and S. W. by San Luis Potosi and Zacatecas; area, 16,687 sq. m.; pop. 146,231. Portions of it are very mountainous, a spur of the great Sierra Madre terminating near the city of Monterey. Between the mountains are broad barren plains, but along the streams are rich alluvial valleys, which with artificial irrigation yield abundant crops. The chief rivers are the Sabinas, Salado, San Juan, and San Fernando or Tigre. The climate, although hot at all seasons of the year, is considered healthy. The chief productions are live stock, consisting of horses, mules, horned cattle, sheep, and goats, for the raising of which the plains and valleys are well adapted. Very large numbers of mules are raised, which find a ready market in other parts of Mexico and in Texas. The annual product of the soil has been stated by Mexican authorities to average 360,000 bushels of Indian corn, 15,000 bushels of beans (*frijoles*), and 46,500 cwt. of sugar. The last is put up in small cakes, and is worth about 3 cents a pound by the quantity; it is of a dark color, and inferior to the West India sugars. Salt is also made on the banks of the Tigre. The state was formerly rich in silver mines, but from the want of capital and enterprise, and of protection from the Indians, who commit great ravages here, the mines are either imperfectly worked or have been abandoned. The principal city is Monterey, the capital.

NEW LISBON, the capital of Columbiana co., Ohio, on the Little Beaver river and on the Ohio and Danby canal, 155 m. N. E. from Columbus and 56 m. from Pittsburg; pop. in 1859 estimated at 3,000. It is neatly and compactly built, and, being situated in the midst of a fertile, populous, and highly improved region, noted as one of the chief wool growing districts of the state, is rapidly increasing in importance. The Little Beaver river supplies it with abundant water power. It contains 3 printing offices, 2 machine shops, 1 saw mill, 3 grist mills, about 25 stores, and 7 churches (Disciples', Dutch Reformed, Episcopal, Friends', Methodist, Presbyterian, and Seceder).

NEW LONDON, a S. E. co. of Conn., on Long Island sound, bordering on Rhode Island, bounded E. partly by the Pawcatuck and W. by the Connecticut river, and drained by the Thames river; area, about 650 sq. m.; pop. in 1850, 51,821. The surface is hilly, and in the S. W. mountainous; the soil is best adapted to grazing. Fishing is extensively carried on. The productions in 1850 were 248,412 bushels of Indian corn, 28,904 of rye, 99,328 of oats, and 80,110 lbs. of wool. There were 22 grist mills, 60 saw mills, 22 woollen and 17 cotton factories, 5 founderies, 5 printing offices, 7 newspapers, 102 churches, and 10,078 pupils attending public schools. The county is traversed by the New London, Willimantic, and Palmer railroad, and partly by the Norwich and Worcester and New Haven and New London railroads. Shire towns, New London and Norwich.

NEW LONDON, a city and port of entry and semi-capital of the preceding county, situated on the right bank of the Thames river, 3 m. from its entrance into Long Island sound, and 50 m. E. from New Haven; lat. 41° 18′ 57″ N., long. 72° 5′ 4″ W.; pop. in 1850, 9,006; in 1860, 10,116. It is built on a declivity sloping toward the S. and E., and the ground in the rear of the city rises to a considerable height. The streets were not originally laid out with much regularity, but have been greatly improved of late years, and the new quarters are well graded. The private residences, owing partly to the influx of summer visitors who are attracted by the beautiful scenery of the neighborhood, are in many cases elegant and picturesque. A fine hotel which has for some years been sustained near the entrance of the harbor (the Pequot house) has also made this city a fashionable summer resort. Among the public buildings are a handsome granite custom house, a substantial and elegant brown stone city building in which also the post office is situated, the court house, and other county offices, and 10 churches, viz.: 3 Baptist, 2 Congregational, 1 Episcopal, 2 Methodist, 1 Roman Catholic, and 1 Universalist. There is an excellent school system, and beside 17 public schools the city has a female academy, and the Bartlett high school. It has a public library with 3,000 volumes, 2 daily and 4 weekly newspapers, 4 banks with an aggregate capital of $600,000, 2 savings banks, 3 iron founderies, 2 steam saw mills, a flouring mill, and a horse-shoe nail factory. The Albertson and Douglass machine company (capital $60,000), the Wilson manufacturing company (capital $100,000), and the Naumkeag manufacturing company ($70,000), are among the largest industrial establishments. A small amount of capital is invested in ship building, 4 vessels with an aggregate burden of 290 tons having been launched during the year ending June 30, 1860. The harbor is the best on Long Island sound, and one of the best indeed in the United States. It is 3 miles long and 5 fathoms deep, sheltered by hills seldom obstructed by ice, and defended by Fort Trumbull at the entrance. This fortress, which has been almost entirely rebuilt since 1840, is one of the best in the country, and mounts 80 pieces of heavy ordnance. It has accommodations for a garrison of 800 men. At the town of Groton, on the opposite side of the river, are the ruins of Fort Griswold, the scene of a massacre by the British in 1781. (See Groton.) The inhabitants of New London have long been actively engaged in the whale fishery, in which the city ranks second only to New Bedford. The coasting trade and other fisheries are also very important. On June 30, 1860, the shipping of the district amounted to 37,490 tons, of which 17,924 was registered and 19,566 enrolled and licensed. Of this the whale fishery employed 13,066 tons, the cod fishery 4,957, and the coasting trade 15,116. During the year 1858–'9 the entrances were 28 American vessels, tonnage 7,558, and 11 foreign, tonnage 1,545—total, 39 vessels, 9,103 tons; and the clearances were 20 American, tonnage 5,492, and 9 foreign, tonnage 1,275—total, 29 vessels, 6,767 tons. The imports amounted to $484,713, and the exports to $173,908. There are two lines of daily steamboats to New York, and the New London, Willimantic, and Palmer, and the New York and Boston (shore line) railroads offer easy communication with all parts of the country.—New London was settled in 1644 by John Winthrop, son of the governor of Massachusetts. On Sept. 6, 1781, it was captured by a British force under Benedict Arnold, who set fire to the stores and shipping, and reduced the most valuable part of the town to ashes. They then attacked Fort Griswold at Groton, and massacred the garrison after it had surrendered. Fort Trumbull, not being tenable, as it was much exposed on the land side, had been evacuated.

NEW MADRID, a S. E. co. of Mo., bordering on the Mississippi river, by which it is separated from Kentucky and Tennessee; area, 880 sq. m.; pop. in 1856, 4,317, of whom 1,649 were slaves. The surface is low and level, and in some places very productive. The remarkable earthquakes of 1811–'12 (see Earthquake, vol. vi. p. 722) severely injured this region, leaving a large portion of the land, now known as the "sunk country," under water. Various efforts have been made to reclaim the land. The productions in 1850 were 586,260 bushels of Indian corn, 13,260 of oats, and 2,419 lbs. of wool. There were 4 grist mills, 2 saw mills, 1 tannery, 1 printing office, 1 newspaper office, 8 churches, and 332 pupils attending public schools. Capital, New Madrid.

NEW MEXICO, a territory of the United States of America, and formerly one of the Mexican states, bounded N. by Utah and Kansas, E. by Kansas, Indian territory, and Texas, S. by Texas and Mexico, and W. by California. It lies between lat. 31° 10′ and 38° N., and long. 103° and 117° 9′ W. Its greatest length is about 700 m., its breadth from 350 to 400 m., and its area nearly 220,000 sq. m. It is divided into 8 counties, viz.: Bernalillo, Donna Anna, Rio Arriba, San Miguel, Santa Anna, Santa Fé, Socorro, Taos, and Valencia. The principal towns are Santa Fé, the capital, Albuquerque, Socorro, and Taos. All that part of the territory lying S. of the river Gila and W. of the Rio Grande, comprising Donna Anna county, with an area of about 30,000 sq. m., and a population of 5,000, is what is called the Gadsden purchase, and is now commonly known as the unorganized territory of Arizona. (See ARIZONA.) The population of New Mexico according to the census of 1850 was 66,547, of whom 66,525 were whites and 22 free colored persons. The Indians number about 44,000 additional.—The Rio Grande, or Bravo del Norte, rises near the N. frontier of the territory on the S. W. border of Kansas, and flows S. E. and S., forming the E. boundary of Arizona, and crossing the frontier between Texas and Mexico. Its tributary, the Pecos, waters the E. part of the territory. The Canadian and some of the head branches of the Arkansas also have their sources here. W. of the Rocky mountains are the Colorado and its tributaries, the Colorado Chiquito or Rio de Lino, San Juan, Virgen, Green, Grand, and Williams Fork; and the Gila with its tributaries, the Rio Verde, San Francisco, and Prieto. The Rio Grande has in the territory a direct course of 500 m., and including windings a length of 1,200 m. In width it varies from 150 to 600 feet, and in dry seasons is nearly all absorbed for purposes of irrigation. The broadest arable valleys lie along this river. The Mesilla valley borders its W. bank; it commences about 10 m. N. of El Paso, and is about 30 m. in length, with a width of from ½ m. to 2 m. The Colorado is the largest river in the territory. Its banks, in many places, where it forces its way through mountains, are very precipitous, rendering it unapproachable. Recent explorations with a steamboat demonstrate that its valleys, mostly covered with timber, are broad and rich, and are capable of sustaining a large population. Artificial irrigation is necessary here, as elsewhere in the territory. Several Indian tribes occupy the valley and cultivate the soil, raising wheat, Indian corn, beans, melons, &c. The U. S. officers who explored this river report that there are about 700 sq. m. of arable land between the mouth of the Gila and the 35th parallel.—The greater portion of New Mexico is mountainous, embracing some of the largest mountain ranges in North America. Among them are the Rocky mountains, and E. of these the lesser chains known as the Sierras Blanca, Organos, Oscuro, Sacramento, and Guadalupe. On the W. side are ranges known as the Sierras Madre, Mogoyon, Burro, Pinal Lleno, Chiricahui, and Santa Rita. N. of the Gila and E. of the Colorado the whole country is intersected by detached ranges or spurs of mountains. The elevation of Santa Fé is 7,000 feet, while the mountains near, whose peaks are covered with snow, rise to the height of 12,000 feet above the level of the sea.—The climate varies much. Near Santa Fé, and in the mountains, the winter is severe. In the southern portions near El Paso the temperature is mild, being seldom below the freezing point. In the Arizona district, S. of the Gila, snow seldom if ever falls, and frosts are rare. The summers are very hot in this district, the temperature ranging from 90° to 110°, yet the whole territory may be considered very healthy. The sky is generally clear and the atmosphere dry. In the southern portion the rainy season is in the months of July and August. The diseases are few. Inflammations and typhoid fevers sometimes appear in the winter season; rheumatism is more prevalent, arising doubtless from the common practice of sleeping on the ground. Pulmonary complaints are scarcely known.—The agricultural portions of New Mexico are the bottom lands near the rivers and small water courses. The principal of these is the valley of the Rio Grande, which river is the main artery of the territory, rising near its northern boundary and flowing through its entire length. This valley is generally from 1 to 4 m. in width, yet in some places expands to 10 or 15 m. It has a light soil, and by artificial irrigation is very productive; indeed, it is not unusual to raise two crops in the year from the same land. As there is but little rain, artificial irrigation is necessary. This is accomplished by damming the stream, and leading the water by canals and ditches, called *acequias*, over the valleys. Near El Paso is an acequia 20 m. in length. The Indians on the Gila also resort to this system of irrigation. Agriculture is carried on in a primitive way, with a hoe and a wooden plough made of a forked tree, such as is used on the plains of Syria and in Persia. By this means only the surface of the soil is disturbed, but it seems quite sufficient for the purpose. The fields are without fences, though many are protected by the ditches, along which bushes spring up, thereby making a hedge. The census of 1850 presents the following statistics of agriculture in New Mexico, not including the Mesilla and Santa Cruz valleys and other districts in what is now called Arizona, that country being then a portion of Mexico. Number of farms, 3,750; acres of improved land, 166,201; unimproved, 124,370; cash value of farms, $1,653,952; of implements and machinery, $77,960. The live stock consisted of 5,079 horses, 8,654 asses and mules, 10,635 milch cows, 12,257 working oxen, 10,085 other cattle, 377,271 sheep, and 7,314 swine; value of live stock, $1,494,629. Wheat raised in 1849, 196,516 bushels; Indian corn, 365,411; peas and beans, 15,688; value of orchard products, $8,231; of gardens, $6,679; of cheese, $5,848; molasses, 4,236 galls.; wool, 32,091 lbs.; tobacco, 8,467 lbs.; wine, 2,363 galls.; value of home manufactures, $6,033; of slaughtered animals, $82,125. Little butter is made, and the caltivation of potatoes has not until recently been attended with success. Stock raising is the most profitable source of income, the country being better adapted to this branch of industry than the cultivation of the soil. Immense flocks of sheep are raised, as well as a great number of mules. Portions of the high plains, valleys, and the lesser hills are covered with grass sufficient for the pasturage of millions of animals; and it is not necessary to protect them in the winter. The great and only impediment to stock raising is the incursions of the Indians, when they carry off immense numbers of animals.—The mineral resources of the country are great, yet this branch of industry is much neglected. Gold, silver, copper, iron, and lead are known to exist in abundance. Zinc is also found. Some of the gold placers have long been imperfectly worked, and would give a plentiful yield if in skilful hands; but with bad management the returns are small. Thirty miles S. W. of Santa Fé are rich placers known as the Ortiz, Biggs, and Davenport mines. Mr. Gregg says that from 1832 to 1835, when mining operations were most flourishing, from $60,000 to $80,000 per annum was taken from them, and that from their first discovery to 1844 they yielded about $500,000. The ore exists in quartz, which is easily crushed. At the new placer, which is in the vicinity, the gold is obtained by washing. Near the Placer mountains the whole soil seems to be impregnated with the precious metal, and it is believed by those who have examined this district that it would be one of the richest gold-bearing countries in the world if science and capital were employed in its development. Silver is also found in many parts. In Spanish times several mines were worked to advantage, but at present the only one worked is the Stevenson mine, in the Organ mountains, near Donna Anna. It is also found in the Sandia mountains. Several copper mines were formerly worked. Coal has been found cropping out upon the surface in many places. Salt lakes or *salinas* are numerous in the country, and are chiefly found between the Rio Grande and the Pecos. From these all the salt (muriate of soda) used in New Mexico is procured. Chihuahua also receives its chief supply from the same source. A train of 10 or 15 large wagons, each capable of carrying 5,000 lbs. of salt, goes once a year from El Paso to a salt lake 60 m. distant, E. of the Organ mountains, for the annual supply. Mineral and warm springs, some of which possess rare medicinal virtues, are found in different parts.—The manufactures are blankets, serapes, and a coarse kind of carpets. There are also a number of distilleries in the country. All the merchandise received and sent from New Mexico is by trains of wagons. From St. Louis large trains are sent to Santa Fé with merchandise, which supplies all the northern portion of the territory. The commerce of El Paso and the southern portion is with San Antonio, Texas. The caravans make the northern journey in from 50 to 60 days; the southern is from 40 to 50 days. Sometimes, when there is a deficiency of grass, they are 20 days longer.—The Indian population may be divided into two great classes: 1, the wild nomadic tribes, and those who live by the chase; 2, the Pueblo or semi-civilized tribes, who live in communities, have fixed places of residence, and cultivate the soil. The former include: 1, the Navajoes; 2, the Apaches, and the various tribes allied to them, among which are the Jicarillas, the Muscaleros, the Coyoteros, the Tontos, the Pinal Llenos, and the Gilenos; 3, the Utahs; 4, the Cheyennes; 5, the Comanches. Beside these, other wandering tribes roam over portions of the territory. The number of these Indians within the territory, according to the report of the governor of New Mexico made in 1855, is as follows: Apaches proper, 7,000; Navajoes, 7,500; Utahs, 2,500; Comanches, Cheyennes, and other wandering tribes, 17,000; total, 34,000. The Apaches and their allied tribes extend from the Colorado of California, along both sides of the Gila, to the borders of Texas, Sonora, and Chihuahua. The Navajoes are between the Little Colorado and the river San Juan. The Utahs are in the northern parts, while the Comanches and Cheyennes roam only in the eastern parts bordering on Texas. The second of the great classes of Indians includes the following Pueblo or village tribes, according to the census taken in 1851, by order of Gov. Calhoun: Taos, 361; Picaris, 222; San Juan, 568; Santa Clara, 279; San Ildefonso, 139; Pojodque, 48; Tesuque, 119; Nambe, 111; Zuñi, 1,500; Laguna, 749; Acoma, 350; Lentis, 210; Isletta, 751; Sandia, 241; Cia, 124; Santanna, 399; Jemez, 365; San Felipe, 411; Santo Domingo, 666; Cochiti, 254; Moqui Pueblos, according to Gov. Bent, 2,450; total, 10,317. Add those of the first class, 34,000, and the whole number of Indians in the territory is 44,317.—New Mexico was among the earliest of the interior portions of North America visited by the Spaniards; and distant as it is from the sea, the adventurous spirit of that people led them here nearly a century before the English had landed on the shores of New England. Alvar Nuñez (Cabeça de Vaca), with the remnant of those who accompanied Narvaez to Florida, reached New Mexico before 1537, and made a report to the viceroy of Mexico of what they saw. The expedition of Marco de Niza followed in 1539, and that under Coronado the next year. The latter traversed the country N. of the Gila occupied by the Pueblo Indians, and pushed his way eastward beyond the Rio Grande to the country of the *cibola*, or buffalo, and is the first who speaks of that animal, which he calls "a new kind of ox, wild and fierce, whereof, the first day, they killed fourscore, which sufficed the army with flesh." The great prairies and desert plains of New Mexico are so truthfully described by Castaneda, the historian of the expedition, that no doubt remains of his crossing the entire country. In 1581 other adventurers under Capt. Francisco de Bonillo reached the country, and on their return made known the mineral wealth existing there, which caused the name of New Mexico to be applied to it. About this period Augustin Ruiz, a Franciscan missionary, entered the country, and was soon after murdered by the Indians. A more successful official of the government was Don Antonio Espejo, who took with him a body of men to protect the missions. The viceroy of Mexico sent Juan de Oñate to take formal possession of the country in the name of Spain, and to establish colonies, missions, and forts there. The year of his arrival is by some writers stated to be 1595, by others 1599. The missionaries met with great success in Christianizing the native tribes. The Pueblo Indians were more ready to adopt the new faith than the roving tribes; and it is a singular fact that on rediscovering some of these Pueblos within a few years, when they had been without any priest for nearly a century, many of the Christian rites and doctrines were found among them, though strangely blended with their own religion. Espejo found the people considerably advanced in civilization. They wore garments of cotton of their own manufacture. Their arms were large bows, and arrows terminated with sharp-pointed stones; their long wooden swords were also armed with sharp stones. They carried shields made of the raw hides of buffaloes. Some of the people lived in stone houses several stories high, the walls of which were ornamented with pictures; these lived in the valleys and cultivated the soil. In the villages were seen a great many idols, and in every house was a chapel dedicated to some evil genius. Oñate is stated by historians to have been the most successful of all the officials sent to New Mexico. Many new missions were established, mines were opened and worked, and the country was in a flourishing state. But the enslavement of the Indians by the colonists, who compelled them to labor in the mines, was too much for them to bear. They made several ineffectual efforts to rid themselves of their oppressors, and finally in 1680 drove out the Spaniards, and recovered the whole country as far south as El Paso del Norte. It was not until after several attempts that the Spaniards regained possession of the country in 1698. In 1846 Santa Fé was taken by a U. S. force under Gen. Kearney, who soon after conquered the whole territory from Mexico. In 1848 it was ceded to the United States by the treaty of Guadalupe Hidalgo; and on Sept. 9, 1850, the present territorial government was established. The territory S. of the Gila (Arizona), acquired from Mexico under the treaty of Dec. 30, 1853, was annexed to New Mexico by act of congress passed Aug. 4, 1854, and still so remains.

NEW MILFORD, a township and village of Litchfield co., Conn., on the left bank of the Housatonic river, and on the Housatonic railroad, 35 m. N. by W. from Bridgeport; pop. of the township in 1860, 3,860. The village is neatly laid out with wide streets, and in 1850 contained 4 churches (Baptist, Congregational, Episcopal, and Methodist), a bank, and 2 woollen factories. The town contains 3 grist mills, 2 paper mills, a fulling mill, a cotton factory, and 5 tanneries.

NEW ORLEANS (French, *La Nouvelle Orléans*), the chief city of Louisiana, capital of the parish of Orleans, and the emporium of the Mississippi valley, situated on the left bank of the Mississippi river, about 100 m. from its mouth, in lat. 29° 58′ N., long. 90° W.; pop. in 1803, 8,000; in 1810, 17,242; in 1820, 27,176; in 1830, 46,310; in 1840, 102,193; in 1850, 116,375; in 1860, 168,823, of whom 13,380 were slaves. A portion of the increase of the last decade is due to the incorporation with the city of the contiguous town of Lafayette (pop. in 1850, 14,190). The older portion of the city is built on the convex side of a bend of the river, which here sweeps around in a N. E., E., and S. E. course. From this location it derives its familiar sobriquet of the "Crescent City." In the progress of its growth up stream, the city has now so extended itself as to fill the hollow of a curve in the opposite direction, so that the river front presents an outline somewhat resembling the letter S, and 6 or 7 m. in extent. This configuration necessarily renders the direction of the streets very irregular. The whole of southern Louisiana is a vast plain, but the land immediately adjacent to the river is more elevated than elsewhere. There is, therefore, a gradual descent from the river to the swamps lying in the rear of the city, at a distance of half a mile to a mile and a half from the levee. These swamps are covered with a dense growth of cypress trees and underbrush, affording a habitation for multitudes of alligators and other reptiles. Beyond the swamp, bordering on the shore of Lake Pontchartrain, 5 or 6 m. N. of the city, lies a tract of drier and more elevated ground, known as the Metairie ridge. Here are several of the city cemeteries. Bayou St. John, a deep, navigable inlet from Lake Pontchartrain, indents the swamp and extends to the suburbs. The "canal Carondelet," communicating with this bayou, penetrates into the heart of the city, and terminates in a basin for the accommodation of vessels. Most of the coasting trade, however, with the ports of the gulf lying eastward, is now carried on through another canal communicating directly with the lake, to the westward of Bayou St. John. The spacious basin of this canal is at all times filled with sloops, schooners, and other craft, most of which are employed in the lumber trade. Beside these canals, the Pontchartrain railroad, connecting the city with the lake, communicates at its terminus with steamers plying to Mobile and other places on the coast. The Carrollton railroad, from New Orleans to the village of Carrollton, 6 or 7 m. above, has also a branch extending to Lake

Pontchartrain. The Mexican gulf railroad, nearly 30 m. in length, connects the city with Lake Borgne. The most important railroads terminating at New Orleans are the New Orleans, Jackson, and great northern, which unites it with the great railroad systems of the eastern and northern states, and the New Orleans, Opelousas, and great western, extending westwardly toward Texas, and susceptible of indefinite prolongation. The great avenue, however, of the trade and commerce of New Orleans, is the Mississippi river. Along the river front of the city the levee, or artificial embankment, is extended by a continuous series of wooden wharfs or piers. A sort of esplanade is thus formed, several miles in extent, which during the busy season presents a scene of singular variety and animation.—The new custom house of New Orleans is one of the largest and most massive structures in America. It was begun in 1848, and is not yet completed. The estimated cost is $8,500,000, a large proportion of which has already been spent. It is of granite, built in the form of a trapezium, to adapt it to the streets which enclose it; the dimensions of the sides being, respectively 334, 310, 296, and 251 feet, fronting Canal, New Levee, Old Levee, and Custom House streets. The height of the main building is to be 85 feet to the roof, and 180 feet to the summit of the dome. The principal room is 116 feet by 95 in dimensions, lighted from the dome, which is to be of iron, supported by 14 Corinthian columns of white marble. The branch mint of the United States, situated on Esplanade street, near the site of Fort St. Charles, which stood at the eastern angle of the old city, is of brick, stuccoed, 282 feet by 108, with two wings, each 81 by 29 feet, the whole being 3 stories in height. The architecture is Ionic, and the cost of the building was $182,000. The coinage, during the year ending July 31, 1860, amounted to $169,000 of gold, and $1,438,000 of silver; total, $1,607,000, being a considerable reduction from the operations of previous years. New Orleans has about 60 churches and places of public worship, of which 2 are Baptist, 8 Episcopal, 3 Jewish, 4 Lutheran, 13 Methodist, 7 Presbyterian, 20 Roman Catholic, 1 Unitarian, &c. Of all these the most celebrated is the cathedral of St. Louis, a noble Gothic edifice, which stands on the site of the original parish church, fronting Jackson square, formerly the Place d'Armes. The present building was erected in 1850. Its façade is flanked by two lofty towers. St. Patrick's, St. Joseph's, St. Augustine's, and the new churches of St. Mary and St. Alphonsus, are all fine specimens of ecclesiastical architecture. St. Paul's and Christ churches (Episcopal), the 1st Presbyterian, the Unitarian, and several Roman Catholic churches beside those above mentioned, are all worthy of note.—Foremost among the benevolent institutions is the charity hospital, supported partly by the state, partly by the city, and partly by various endowments. Among the earliest and most liberal of its benefactors was Señor Roxas, who, about 1786, erected a building (afterward consumed by fire) at an expense of $114,000, and endowed it with a revenue of $1,500 per annum. The present edifice, erected about 1812, accommodates 400 or 500 patients, and is attended by sisters of charity. The sisters have another infirmary or *maison de santé*, with 100 or 150 patients. The ladies of Providence have an asylum for infirm old men and an asylum for widows. Stone's hospital, the Franklin infirmary, and the U. S. naval hospital are the principal other establishments for the care of the infirm. Beside many other charitable institutions, there are 6 Roman Catholic orphan asylums, one of which has a country house at Carrollton for sick and delicate children, while another is also an industrial school. One of the most interesting of the benevolent foundations is the Hebrew benevolent association, which was liberally endowed by the late Judah Touro, an eminent merchant of New Orleans.—The public school system of New Orleans was inaugurated in 1841, and has been conducted with great success. The schools are governed by a separate board of directors and superintendent for each of the 4 districts; the directors being elected annually by the city council, and the superintendents by the directors of each district, respectively. In connection with the schools of the 1st and 2d districts are valuable public libraries; that of the 1st district contains more than 11,000 volumes. Both of them include some rare and valuable works. Beside these, there are numerous private schools, two well supported and flourishing medical colleges, a Roman Catholic ecclesiastical seminary, a college under the Jesuits, a convent and academy of Ursuline nuns, free schools directed by members of several religious orders, male and female, and a convent of Redemptorists. There are 10 daily newspapers; 1 commercial, 1 literary, and 4 religious weeklies; 2 medical journals; and "De Bow's Review," a monthly commercial, industrial, literary, and miscellaneous repository. One of the daily journals is exclusively German; one of the religious weeklies is French; and two of the dailies are both French and English. The other journals and periodicals are printed in English. The great comparative cost of printing and other labor operates as a severe restriction upon periodical literature in New Orleans and the South-West generally.—The principal theatres are the *théâtre d'Orléans*, the elegant new opera house opened in 1859, and the St. Charles and varieties theatres. Of the hotels, the St. Louis, which extends 300 feet on St. Louis street, from Chartres to Royal, with a depth of 120 feet on each of the last two streets, is celebrated for its magnificent rotunda, the ceiling of which is richly adorned with paintings. The St. Charles is one of the most imposing edifices in the city. It was destroyed by fire a few years ago, and rebuilt in 1852, at a cost of about $590,000. The St. James, opened in 1860, and the city hotel, are also spacious and elegant buildings. Among other public buildings worthy of note, not already mentioned, are the Odd Fellows' hall, municipal hall, bank of Louisiana, canal bank, U. S. marine hospital in the village of McDonough opposite the city, and the U. S. military barracks about 3 m. below. Some of the largest and most costly structures are the vast cotton presses. The Orleans press occupies a space of 632 by 308 feet, most of which is covered with buildings. It has storage for 25,000 bales of cotton, and compresses on an average about 150,000 bales per annum. The cost of the ground and buildings was $753,000. The Levee press cost $500,000.—The streets, shops, and dwellings of New Orleans present an extraordinary variety of style and construction. The limits of the old city, as it existed under the French and Spanish governments, are defined by Canal, Rampart, and Esplanade streets. These three streets, occupying what was formerly the line of the defensive works, are nearly 200 feet in width, with a sidewalk and carriage way on each side, and in the middle an unoccupied space (or "neutral ground," as it is called) planted with a double row of trees. Within the above limits the streets are narrow, crossing each other at right angles, the houses compactly built, but without uniformity, and the whole presenting the appearance of a European city. Many of the dwellings are constructed with a carriage way and gate opening directly from the street to an interior courtyard enclosed by the main building. Most of the signs over the shops are inscribed in French, or both French and English. This portion of the city, with the old faubourg Trémé in its rear, constitutes the 2d district, formerly the 1st municipality. Next above, extending from Canal street to Felicity road, lies the 1st district, formerly the faubourg St. Mary, and subsequently the 2d municipality; while still beyond is the 4th district, prior to 1852 the city of Lafayette. In these two districts the buildings are more modern, and most of the streets are wider, though very irregular in their directions. In the 4th district many of the dwellings are spacious and of great elegance, with ample grounds for shrubbery, &c. Below the old city again lies the 3d district, formerly the faubourg Marigny, and afterward the 3d municipality, which is the residence of a large portion of the creole and foreign population. The nomenclature of the streets is remarkable. French, Spanish, and Anglo-American ideas and personages are all represented. The 9 Muses, with other heathen divinities, give name to one series, while in other quarters are found St. Charles, St. Mary, St. Louis, St. Andrew, St. John Baptist, St. Paul, St. Peter, and the like, together with "Love," "Piety," "Religious," "Virtue," &c. The Pontchartrain railroad, by which the traveller arrives from the eastward, runs through the Elysian fields—a street, and by no means the most attractive one of the city. "Greatmen," "Goodchildren," "Frenchmen," "Craps," &c., are specimens of other odd and apparently whimsical names. The same street repeatedly changes not only its direction, but its designation. Thus Royal, one of the original streets of the old city, becomes St. Charles on entering the 1st district, and still higher takes the pagan and poetical name of Nayades; while its continuation in the opposite direction, through the 3d district, commemorates the marquis Casa Calvo, the last of the Spanish governors. In like manner Bourbon becomes Carondelet and then Apollo in one direction, and declines into Bagatelle in the other. An effort has been recently made by the city authorities to correct many of these irregularities. There are 5 or 6 public squares in New Orleans. Jackson square, formerly the Place d'Armes, is coeval with the foundation of the city. It is tastefully adorned with shrubbery and statuary, prominent amid which, in the centre of the square, is a bronze equestrian statue of Gen. Jackson, by Clark Mills. Lafayette square, in the 1st district, is well shaded, and affords a delightful summer promenade. The present Place d'Armes is Circus place, or Congo square, so called from the fact of its having formerly been a favorite resort of the negroes for dancing and other amusements. A colossal statue of Henry Clay, by Hart, was inaugurated April 12, 1860. It is of gilt bronze, and stands on the "neutral ground" in the centre of Canal street. The markets of New Orleans, of which there are 7, are among the most interesting fields for observing the peculiarities of creole life and habits. The "Old French Market" (as it is popularly known) of the 2d district is the most extensive and characteristic.—The population of New Orleans has long been remarkable for the diversity of its elements. About one half of the whites are of foreign birth, and among these the French and Spanish are predominant. The Irish and Germans are also numerous. The English and Scotch are few in proportion, and are chiefly connected with the foreign commerce as merchants or factors. Sir Charles Lyell says, describing the markets of New Orleans: "When passing through the stalls we were surrounded by a population of negroes, mulattoes, and quadroons, some talking French, others a patois of Spanish and French, others a mixture of French and English, or English translated from French, and with the French accent. They seemed very merry, especially those who were jet-black. Some of the creoles also, both of French and Spanish extraction, like many natives of the south of Europe, were very dark." The same traveller describes the French creole ladies as very handsome, usually not so thin as are the generality of American women, and as dressing in Parisian fashion, "their luxuriant hair tastefully arranged, fastened with ornamental pins, and adorned with a colored ribbon or a single flower."—There are about 17 cemeteries in and around the city. The soil being so moist and marshy that interment beneath the surface is objectionable, the usual mode of sepulture, whenever the expense can be incurred, is in tombs above ground. Many of these are of costly and elegant construction. The walls of these enclosures are about 10 feet in thickness and 12 in height, and are completely honeycombed with arched cells, just large enough for the reception of coffins endwise. The mouth of the cell, when occupied, is hermetically closed. On All Saints day (Nov. 1) the Roman Catholic cemeteries, and the others to some extent, are resorted to by great crowds of visitors, as it is then customary to visit the tombs of deceased relatives and friends, and adorn them with wreaths, bouquets, and other offerings. New Orleans, during the first 70 or 80 years of its existence, seems to have been regarded as eminently healthful. The unacclimated were subject to slight fevers, which were rarely fatal. De Lozières, a French traveller, who was in Louisiana from 1794 to 1798, speaks of it as follows: "New Orleans is an enchanting place of abode. The air there breathed is so wholesome, the earth so fruitful, the location so delightful, that we might fancy ourselves in the midst of a flower garden. It is on the banks of the Mississippi—those banks so favored by nature; and its pure and pleasant waters are said to possess the property of contributing even to the multiplication of the human race." Such was the general tenor of the descriptions given of it during the 18th century. Since its transfer to the American government, the repeated ravages of yellow fever have given it a very different reputation. It appears, nevertheless, to be well established that, apart from yellow fever, the healthfulness of New Orleans is not surpassed by that of any large city, and that, including all risks, the natives and thoroughly acclimated residents compare favorably with any other community in respect of health and longevity. The generally received statement is that yellow fever first appeared in this city in 1769, the same year in which O'Reilly took possession in the name of the Spanish crown. Dr. Bennet Dowler, however, who has bestowed much research upon the subject, believes that its first appearance was in 1796. On either supposition its occurrence was long subsequent to the prevalence of the disease in other cities of Europe and North America. It prevailed with some severity in 1799, and has repeatedly ravaged the city during the present century. Some of the most memorable epidemics were those of 1819, '22, '29, '33, '35, '37, '39, '41, '43, '47, '53, and '58. In 1853, out of a population supposed to be reduced to about 120,000, the whole number of deaths during a period of 150 days—from May 26 to Oct. 22, inclusive—was 11,156, of which about 8,500 were attributed to yellow fever. The greatest number of deaths in any one day was 283, on Aug. 22. Even in this fatal season the natives and older residents were to a great extent exempted, most of the mortality occurring among strangers and foreigners. From fear of epidemics and the general relaxation of business, the population is much reduced during the months of July, August, September, and October.—The water of the Mississippi was introduced into the city for domestic uses in 1836. The works were constructed under the direction of Albert Stein, at a cost of about $400,000. The reservoir, occupying the space between Richard, Market, St. John Baptist, and Religious streets, is 250 feet square, divided into 4 compartments, and surmounted, at the intersection of the partition walls, by a handsome pavilion. Its capacity is 4,000,000 gallons, and it is supplied by pumps worked by a steam engine. The average daily delivery in 1859 was about 6,000,000 gallons, and the number of buildings supplied about 8,000. Most of the dwellings are also provided with large cisterns for rain water. The streets of New Orleans were almost entirely unpaved until within 30 or 40 years past. The nature of the soil rendering it very difficult to keep an ordinary pavement in repair, the authorities are now (1861) engaged in paving the principal streets with large blocks of granite. A company has been chartered, with a capital of $1,000,000, for the construction of a network of street railroads, and a portion of the work is accomplished. This company holds the exclusive privilege for 25 years, for which it pays the city the sum of $130,000. Among other recent improvements is a police and fire-alarm telegraph, by means of which instant communication may be held between the central police office at the city hall and every part of the city. —The city government consists of a mayor, board of aldermen, and board of assistant aldermen. Each district has its own recorder, who holds a court for the trial of offences against the municipal laws. The executive police, however, is under the immediate control of the mayor.—The villages of Algiers, McDonough, and Gretna, on the opposite side of the Mississippi; Jefferson City, immediately above the 4th district; Carrollton, a few miles beyond; and Milneburg on Lake Pontchartrain, at the end of the Pontchartrain railroad, are dependencies of New Orleans. Algiers has a considerable population, extensive docks for the construction and repair of vessels, some manufactories, several churches, &c. Gretna has some neat and tasteful dwellings. The "stock landing" and depot of cattle for the New Orleans market is in Jefferson City. During the year 1859–'60 the receipts here were 24,095 western cattle, 32,518 Texas cattle, 3,066 milch cows, 25,659 "veal cattle," 30,922 hogs, and 51,294 sheep.—The trade of New Orleans did not for some years keep pace with the increase of population. On the contrary, from 1806 to the close of the war of 1812–'15, there was a considerable decline. In 1802, the year previous to the transfer from France, the exports amounted to 40,000 tons, of which the principal articles were as follows: 50,000 barrels of flour, 3,000 barrels of salt beef and pork, 2,000 hogsheads of tobacco, 4,000 hogsheads of sugar, 34,000 bales of cotton, and 800 casks of molasses. The trade with the interior was carried on by about 500 flat boats. New Orleans is now the second city in America in the amount and value of its exports, the greatest cotton market in the world, and far beyond all other cities in the number of steamboats employed in its trade. The following table exhibits the annual value of exports from 1805 to 1820, inclusive:

Years.	Exports.	Years.	Exports.
1805	$3,371,545	1813	$1,045,153
1806	3,887,323	1814	387,191
1807	4,320,555	1815	5,102,610
1808	1,261,101	1816	5,602,948
1809	541,924	1817	9,024,812
1810	1,890,952	1818	12,924,309
1811	2,650,050	1819	9,768,753
1812	1,060,471	1820	7,596,157

Since 1820 the increase of trade has been more steady. From 1821 to 1824, inclusive, the average annual value of exports was about $7,750,000; of imports, about $4,000,000. From 1825 to 1833, inclusive, the average value of exports was about $14,000,000, and the average value of imports was nearly $7,000,000. From 1834 to 1842 the average values of exports and imports were, respectively, about $33,000,000 and $12,500,000. From 1843 to 1850 the average of exports rose to nearly $40,000,000, while that of imports declined to $9,000,000. The following is a statement in detail for the last 10 years, the annual amount being made up for the 12 months ending with June 30 of each year:

Years.	Exports.	Imports.
1851	$54,418,968	[illegible]
1852	49,396,918	[illegible]
1853	68,292,000	[illegible]
1854	60,962,130	[illegible]
1855	55,400,711	[illegible]
1856	80,547,968	[illegible]
1857	91,514,286	[illegible]
1858	88,852,426	[illegible]
1859	101,634,962	[illegible]
1860	108,298,567	[illegible]

The following table exhibits the value of southern and western produce received at New Orleans for the last 12 years, ending with Aug. 31 of each year:

Years.	Cotton.	Sugar.	Molasses.	Tobacco.	Other products.	Total.
1849	$30,844,314	$8,800,000	$2,288,000	$3,903,450	$36,153,928	[illegible]
1850	41,885,150	12,396,150	2,400,000	6,166,400	34,049,173	[illegible]
1851	48,756,764	12,678,180	2,625,000	7,736,600	35,127,529	[illegible]
1852	48,592,222	11,827,350	4,026,000	7,196,185	36,409,951	[illegible]
1853	68,759,424	15,452,688	5,140,000	7,938,650	37,442,973	[illegible]
1854	54,749,602	15,726,340	3,720,000	4,228,100	36,912,756	[illegible]
1855	51,390,720	18,025,020	4,255,000	7,111,370	36,424,713	[illegible]
1856	70,371,720	16,199,890	4,582,242	7,982,800	45,119,429	[illegible]
1857	86,255,079	8,137,300	2,685,300	11,892,120	49,091,510	[illegible]
1858	88,127,340	17,900,608	4,601,015	13,628,327	42,798,256	[illegible]
1859	92,037,794	24,998,424	6,470,817	9,161,750	40,283,879	[illegible]
1860	109,389,228	18,190,880	6,250,335	8,717,485	42,663,326	[illegible]

The next table exhibits the share of New Orleans in the cotton trade of the country, giving the receipts and exports, and also the whole crop of the United States, in bales, for 25 years:

Years.	Receipts.	Exports.	Crops.
1836	495,443	536,991	1,360,725
1837	605,813	588,969	1,422,930
1838	742,726	738,313	1,801,497
1839	578,514	579,176	1,360,532
1840	954,445	940,320	2,177,835
1841	822,870	821,288	1,634,945
1842	740,155	749,267	1,680,574
1843	1,089,042	1,088,870	1,378,875
1844	910,854	895,375	2,030,409
1845	979,238	884,616	2,394,503
1846	805,375	1,065,857	2,100,537
1847	740,550	724,508	1,178,651
1848	1,213,805	1,054,807	2,347,635
1849	1,152,382	1,167,303	2,728,596
1850	837,723	838,541	2,096,706
1851	995,048	997,458	2,355,257
1852	1,430,103	1,435,961	3,015,029
1853	1,665,047	1,614,131	3,262,882
1854	1,442,677	1,426,573	2,930,027
1855	1,287,888	1,274,029	2,847,339
1856	1,764,613	1,784,816	3,527,845
1857	1,517,496	1,516,875	2,939,519
1858	1,678,775	1,660,220	3,113,962
1859	1,774,739	1,777,168	3,851,481
1860	2,255,458	2,214,315	4,650,000

It is to be observed that there has been a gradual increase in the average weight of the cotton bale during the period covered by the above table. The annexed statement shows the receipts and exports of the principal articles of produce during the year ending Aug. 31, 1860:

Articles.	Receipts.	Exports.
Cotton, bales	2,255,458	[illegible]
Tobacco, hhds.	81,066	[illegible]
Sugar, hhds.	173,219	[illegible]
Molasses, barrels	312,848	[illegible]
Flour, barrels	954,174	[illegible]
Indian corn, sacks	1,702,847	[illegible]
Pork, barrels and tierces	212,820	[illegible]
Pork, in bulk, lbs.	5,279,654	
Beef, barrels and tierces	35,119	[illegible]
Bacon, hhds. and casks	42,886	[illegible]
Hams, casks and tierces	35,127	[illegible]
Lard, barrels and tierces	57,014	[illegible]
Lard, kegs	56,557	[illegible]
Whiskey, barrels	165,098	[illegible]
Hides	150,129	[illegible]
Lead, pigs	81,993	[illegible]

To which may be added the following statement of various articles received, chiefly for city and plantation use:

Oats, sacks	[illegible]
Hay, western, bales	[illegible]
Hay, northern and eastern, bales	[illegible]
Bagging, Kentucky, pieces	[illegible]
Star candles, boxes	[illegible]
Apples, barrels	[illegible]
Bale rope, coils	[illegible]
Butter, western, kegs, &c.	[illegible]
Cheese, western, boxes	[illegible]
Lard oil, barrels	[illegible]
Coal, western, barrels	[illegible]
Potatoes, western, barrels	[illegible]

The receipts at the custom house of cash duties on imports for 8 years, each ending June 30, were as follows: 1853, $2,158,172; 1854, $2,647,836; 1855, $2,131,001; 1856, $3,548,341; 1857, $3,595,420; 1858, $2,034,554; 1859, $2,103,062; 1860, $2,620,665. The principal imports in 1859–'60 were: West India sugar, 3,129 hogsheads, 16,914 boxes and barrels; Brazil sugar, 339 bags; Cuba molasses, 17,419 hogsheads and tierces, 5,604 barrels; Liverpool salt, 848,327 sacks; Sicily salt, &c., 371,182 bushels; Rio coffee, 280,926 bags; Cuba coffee, 4,615 bags. The number of entrances and clearances of sea-going vessels has varied but little for 10 years past, averaging a little more than 2,000 per annum; but the aggregate tonnage has advanced from 768,000 in 1850–'1 to more than 1,200,000 in 1859–'60, showing a progressive increase in the size of the vessels employed. For the year ending June 30, 1860, the entrances were 2,052, with a tonnage of 1,212,029; the clearances 2,235, with a tonnage of 1,248,526. Of the arrivals, about 300 were of steamships. The arrivals of steamboats for the year ending Aug. 31, 1860, were 3,566; of flat boats, 331. The greatest obstruction to the commerce of New Orleans arises from the bars existing at the mouths of the Mississippi, occasioned by the immense amount of sedimentary matter brought down and deposited by the river. These bars vary in position and in the depth of water upon them, almost every freshet occasioning some change in these respects. Various efforts have been made, at great expense, by dredging and other means, to deepen the water and obtain a channel of sufficient depth, but thus far none have been permanently successful.—The banking system of New Orleans is regarded as one of the best in existence. The number of banks is 11, with an aggregate capital of $18,087,300. The dividends paid by these banks during the year ending Aug. 31, 1860, amounted to $1,991,180. There are 11 insurance companies, with an aggregate of capital and assets amounting to $8,409,816. The premiums earned by these companies during the year amounted to $4,934,470, and the losses paid to $3,403,498.—The first settlement was made at New Orleans in 1718, under the direction of Bienville, then governor of the French province of Louisiana, who had become convinced of the propriety of removing the chief seat of the colony from Mobile to the more productive region lying on the Mississippi. Charlevoix, who visited it in 1722, speaks of it even then as "this famous town which has been named New Orleans." He expresses his disappointment, however, on finding it really to consist only of "a hundred cabins, disposed with little regularity; a large wooden warehouse; two or three dwellings that would be no ornament to a French village; and the half of a sorry storehouse, which they were pleased to lend to the Lord, but of which He had scarcely taken possession when it was proposed to turn Him out to lodge under a tent." He goes on, nevertheless, to make the prediction that "this wild and dreary place, still almost entirely covered with woods and reeds, will, one day (and perhaps that day is not far distant), be an opulent city and the metropolis of a great and rich colony." The population at this time consisted of about 200 persons.—In 1723 Bienville removed his head-quarters from Mobile to New Orleans, and the seat of government was permanently transferred. On Sept. 11 of the same year occurred a frightful hurricane, which destroyed the church, hospital, and three ships that were lying in the river, beside doing immense damage to the crops in the adjacent country. In 1726 Bienville was superseded by Périer, one of the earliest acts of whose administration was the construction (1727) of a strong levee, more than a mile in length, in front of the city, which had previously been subjected to annual overflows from the river. Smaller levees were also extended for about 15 m. above and the same distance below, and a deep ditch or canal was dug around the city. About the same time arrived a colony of Jesuits and one of Ursuline nuns, sent out by the western company to take charge of the spiritual interests of the colony. Grants of land and other property were made to each of these societies, and a building was erected for the use of the Ursulines, which was occupied by them from 1730 to 1824, and which is still known as the "old Ursuline convent," being probably the oldest edifice in existence in Louisiana. It is now occupied as a residence for the Roman Catholic archbishop. The Ursulines have erected a spacious and handsome building 2 or 3 m. below the city, devoting themselves chiefly to female education. The Jesuits established themselves just above the city, in what is now the 1st district, where they continued to reside until expelled from the colony in 1763. The following description of New Orleans, by Le Page du Pratz, probably applies to a period some 10 or 12 years subsequent to that quoted above from Charlevoix: "In the middle of the city, facing the river, is the Place d'Armes. Midway of the rear of this square is the parish church, dedicated to St. Louis, where officiate the reverend father Capuchins; their residence is on the left of the church; on the right are the prison and guard house. The two sides of the square (*place*) are occupied by two sets of barracks. The square is entirely open on the side next the river. All the streets are regularly laid out in length and width; they cross each other at right angles. These streets divide the city into 66 squares (*isles*), 11 in length along the river, and 6 in depth. These squares measure 50 toises (about 320 feet) each way, and are each divided into 12 lots." Bienville was reappointed governor of the colony in 1733, and continued in office until 1741. He was followed, in succession, by Vaudreuil, Kerlérec, D'Abbadie, and Aubry. During this period of French occupation the progress of New Orleans appears to have been steady, though very gradual. In 1745 the population was estimated at about 800 white inhabitants, exclusive of women, children, and 200 soldiers, beside 300 negroes. In 1763 the city of New Orleans, with the rest of the colony of Louisiana, was ceded to Spain. Such, however, was the aversion of the inhabitants to the transfer, that it was not until 6 years afterward that the Spanish government actually obtained possession. At this time the whole population was 3,190, of whom 1,803 were free whites, 31 free blacks, 68 of mixed blood, 1,225 negro slaves, and 60 domesticated Indians. The whole number of houses was 468. The city and colony declined somewhat during the brief and rigorous administration of O'Reilly, the first Spanish governor, many of the best inhabitants removing to the West Indies and elsewhere, but revived under the government of a series of moderate and judicious successors. In 1785 a census taken by order of Gov. Galvez exhibited a population of 4,980 souls. On March 21, 1788, a terrible conflagration occurred, by which 900 houses were destroyed, with a vast quantity of property of every description. Provisions became very scarce, and the inhabitants were threatened with famine. Nevertheless the population, according to a census taken in the course of the same year, amounted to 5,338. The administration of the baron de Carondelet (1792–'7) was marked by various improvements, among which were the lighting of the streets, the organization of fire companies, and the opening of the canal Carondelet. He also erected new fortifications around the city, and organized a militia force of about 700 men. During his administration (in 1794) the first newspaper, the *Moniteur*, was issued. A new impetus was given to the trade of New Orleans in 1795 by the treaty of Madrid, between Spain and the United States. At the time of the transfer of Louisiana to the United States, in 1803, the population of the city was about 8,000. Its limits at that time comprised only a portion of what is now the 2d district. It was bounded by Canal, Rampart, and Esplanade streets, and the river, forming nearly a rectangle, defended by 4 strong forts, one at each corner. The faubourgs (or suburbs) St. Mary, Marigny, Tremé, &c., now comprising some of the most wealthy and populous portions of the modern city, were then little more than wild meadows and marshes. The most memorable event in the history of New Orleans, since its transfer to the United States, is the battle on Jan. 8, 1815, for an account of which see JACKSON, ANDREW. Gas was first employed for lighting the streets in 1834, through the enterprise of James H. Caldwell, Esq. In 1836 the city was divided by an act of the legislature into three municipalities, each with a separate government; but in 1852 these municipalities were consolidated, and the limits of the corporation were extended to include the town of Lafayette, lying in the adjacent parish of the same name. The 1st, 2d, and 3d municipalities are now, respectively, the 2d, 1st, and 3d districts, while the former city of Lafayette constitutes the 4th district.

NEW PHILIPPINES. See CAROLINE ISLANDS.

NEW PROVIDENCE, one of the Bahama islands, lying near the centre of the group, and containing Nassau, the seat of government; pop. in 1851, 8,885. It is 17 m. long from E. to W., and 7 m. broad. It was colonized by the English in 1629, and twice taken from them by the Spaniards, but finally restored at the peace of 1783. It is more hilly than most of the other islands of the group, has some fertile land, and produces good fruits.

NEW SOUTH WALES, a British colony occupying the S. E. part of Australia, stretching along the S. Pacific ocean from Cape Howe to the vicinity of the Solitary islands, bounded N. by the colony of Queensland, E. by the Pacific, S. by the colony of Victoria, and W. by the interior territory of the colony of South Australia. It extends between lat. 30° and 37° 30′ S., and long. 141° and 153° E., or about 750 m. E. and W. and 500 N. and S.; area, nearly 300,000 sq. m.; pop. on Jan. 1, 1858, 305,487 (171,673 males and 133,814 females), according to the official statement, but actually estimated at 334,000; and amounting in 1860, at the average annual rate of increase of 15 per cent., to nearly 450,000. The colony of Queensland, extending from lat. 26° to 30° S., was formerly the Moreton Bay district of New South Wales, and was separated from the latter colony in June, 1859; but as this separation is scarcely yet completed, we shall treat the two under the name of the parent colony. This immense territory, comprising altogether about 500,000 sq. m., is divided into 68 counties and several squatting districts. The counties lie along the whole length of coast, extending for about 140 m. into the interior; and the country which they occupy has been thoroughly surveyed and explored, and more or less occupied by settlers. Beside Sydney, the capital, there are several towns of considerable importance on the coast and in the interior, the chief of which are E. and W. Maitland, Liverpool, Bathurst, Goulburn, Windsor, Newcastle, Yass, Penrith, Woolongong, and Paramatta.—The coast line presents in general bold perpendicular cliffs of sandstone, occasionally interrupted by low sandy beaches, some of which stretch a considerable distance inland, and appear to have been covered by the sea at no very remote period. There are numerous bays and indentations along the shore, some of which form excellent harbors. Hervey bay is a very extensive sheet of water at the N. boundary, and next to it in extent is Moreton bay, formed between the mainland and Moreton and Stradbroke islands, the two largest of the colony. Proceeding to the S. from this point there is no important opening for 300 m.; but beginning at Port Stephens there is a succession of harbors, some of them already forming considerable commercial emporiums. The most important of these are Port Hunter, Port Macquarie, Broken bay, Port Jackson, Botany bay, Port Hacking, Sussex haven, and Jarvis and Twofold bays.—A mountain range, varying in height from 3,000 to 6,000 feet, extends from N. to S. nearly parallel to the coast, at the distance of from 30 to 50 m. inland, and is called the Liverpool range in the N., in the centre the Blue mountains, and at the S. the Australian Alps. The space between the mountains and the sea has an undulating wooded surface, broken here and there by spurs and ramifications from the mountain range, and in some places covered with dense brushwood. The ground to the W., instead of descending rapidly, continues rugged and mountainous for a considerable width, and at last assumes the form of an elevated plateau, a great part of which remains unexplored. Several considerable rivers rise on the W. side of the mountains and flow westward; but as they have only the first part of their course in New South Wales, they do not properly belong to it. The more important of these rivers are the Murrumbidgee, Lachlan, Bogan, Macquarie, and Peel. The rivers on the E. of the mountain range are mostly small, and many of them are dry during part of the year. The chief are the Hunter, Hawkesbury, George, Shoalhaven, and Clyde. In the N. are the Hastings and Clarence.—The prevailing rock on the E. side of the mountains is sandstone, and on the W. granite. Much of the sandstone belongs to the carboniferous system, and there are several workable seams of good coal. The Newcastle field on the Hunter river is excellent in quality, and contains 5 seams, 2 of 5 feet and 3 of 3 feet in thickness. This field is worked extensively, and the produce, after supplying colonial demands, is shipped to India, China, and California to supply steamers. Several other fields are known, and one is worked at Woolongong. Iron ore is found in many places, and some of it has been smelted by a company formed for the purpose. Rich copper ore is abundant in and around Wellington district. Fine pebbles are so plentiful in the Hunter river, that it is supposed in some part of its course to flow over rocks of jasper, agate, opal, and chalcedony. All these, however, were regarded as comparatively unimportant after the discovery of rich deposits of gold in May, 1851. Gold has since been found in numerous places throughout the colony, and in the territories both N. and S. of it. Near the frontiers of Victoria, particularly in the counties of Wellesley and Wallace, it occurs in several localities; and N. of these it is met with in more than 9 other counties, and is found on the banks of the Macquarie and Meroo rivers. There are considerable deposits about the Peel and its tributaries, and also upon the Fitzroy river somewhat beyond the N. frontier. Australia being in the S. hemisphere, the seasons are the reverse of ours; December is there midsummer, and June the depth of winter. Summer extends over December, January, and February; and the mean heat during these 3 months is about 80° at noon. This heat, however, is tempered by the sea breeze, which begins to blow regularly along the coast about 9 in the morning, and continues till evening. The whole colony is subject to hot winds, which are liable to happen 3 or 4 times during the summer, and which blow from the N. W., raising the thermometer to 125° when exposed to their influence. These winds seldom last longer than a few hours, and are succeeded by a very heavy squall from the S., generally accompanied by thunder and rain, cooling the atmosphere immediately. At Sydney the average annual temperature is 64°; that of spring being 65°, of summer 72°, of autumn 66°, and of winter 55°; showing an annual average range of the thermometer of 17°. The temperature of the country above the mountains, however, is much lower, and at some places snow falls in winter. The annual fall of rain is 52 inches at Port Jackson, and 62 at Port Macquarie. Droughts are frequent. The climate is, however, both healthful and agreeable, and its influence is highly beneficial in consumptive diseases.—For 5 or 6 m. from the sea coast the country is in general barren, the soil being mostly composed of drift sand covered with a stunted vegetation. Some rich and fertile districts, however, occur at intervals. Further inland well wooded and fertile valleys lie between the hills, but the land on the E. side of the Blue mountains is as a general rule much inferior in quality, both for agriculture and pasture, to that on the W. Above the range it consists of a dry black soil, covered with open forests and luxuriant herbage. Wheat, barley, oats, rye, various grasses, maize, tobacco, and small quantities of cotton, are all profitably cultivated in different parts of the colony; and potatoes, cabbage, carrots, parsnips, turnips, peas, beans, cauliflowers, lettuces, cucumbers, pumpkins, sweet potatoes, yams, and plantains thrive remarkably well. At Sydney the market is supplied with green peas all the year round; very few vegetables degenerate, and many are more productive than elsewhere. Peaches, apricots, nectarines, loquats, oranges, pears, plums, figs, pomegranates, raspberries, strawberries, mulberries, and melons attain great perfection. The N. districts produce pineapples, bananas, guavas, lemons, citrons, and various other tropical fruits, while W. and S. of Sydney the apple, currant, gooseberry, and cherry are found to grow well. More than 1,000 acres are planted with the vine, and the grapes are of the finest quality. About 50,000 sq. m. of pasture land is occupied by flocks and herds. In 1855 there were 157,159 horses, 1,858,408 horned cattle, 68,091 swine, and 8,603,499 sheep; and a recent estimate based upon official returns of the ratio of increase of the latter since then, makes the number of sheep within the territory in 1860 considerably over 10,000,000. The climate is particularly well suited to all these animals. Horses are exported in large numbers to India, both for private use and to supply the cavalry and artillery; horned cattle grow to an immense size; and the wool of the sheep is of very superior quality. Asses, mules, and goats are seldom seen. The camel has been introduced for exploring purposes, but has not thriven. About 300 head of llamas, alpacas, and vicuñas have lately been introduced. They were procured with great difficulty, and exported from Peru notwithstanding the rigid prohibitions of the government of that country. High expectations are formed of these animals, which it is thought will exert great influence on the wool trade of Australia, as the fleece of the alpaca weighs from 10 to 12 lbs., while the colonial sheep yields an average of about 2½ lbs. The mountains of New England, between Sydney and Moreton bay, are said to have a climate similar to the American Cordilleras, where the family of the llamas are found. Domestic fowl of every description, and some that are delicate elsewhere, thrive remarkably well, and are reared at small expense. Fish are abundant on the coasts; and there is a kind of fresh water codfish in the Murray river which weighs sometimes as much as 70 lbs. Oysters are plentiful, and turtle are procured from the waters of the N. part of the colony.—According to the census of 1856, barely a third of the population of New South Wales was born in Australia; about 75,000 were supplied by England and Wales, 50,000 by Ireland, 16,000 by Scotland, 5,000 by Germany, and 2,000 by China. The population now (1860) includes a large portion of Chinese, many Americans, and some of almost all European nationalities. In appearance and character the native-born part of the community is said to bear a strong resemblance to those of Anglo-Saxon descent in the United States. Since the first establishment of the colony in 1787, the total number of convicts sent into it from Great Britain up to 1840, when the importation ceased, was 54,383. In 1843 the whole population of both New South Wales and Port Phillip (Victoria) was 165,541. At present probably the number of convicts remaining is less than 14,000, while the population of New South Wales and Victoria, taken together, is not much short of 1,000,000; or in other words, the number of actual convicts is only about 1 in 70 of the population. The descendants of felons, however, are much more numerous; but education has been of late years much attended to, and many whose progenitors came to New South Wales as prisoners are intelligent and estimable members of the community. Some of the emancipists, and several of their descendants, are among the most wealthy people in the colony; but the former are never, and the latter but rarely, admitted into the better class of society. The gold fields, however, now attract such an influx of settlers that these caste distinctions must soon disappear, by the convict element being entirely absorbed in the free population.—Much of the soil of New South Wales is very fertile; but the cultivation is slovenly, and it is only lately that machines have been introduced calculated to economize labor and increase the amount of production. At present the principal attention of the colonists is turned to the produce of the pasture lands, chiefly in the form of wool, hides, and tallow. In 1857, 17,044,961 lbs. of wool were exported. Wines of very superior quality are made, resembling Sauterne, Barsac, hock, claret, &c.; and the culture of the grape promises to become one of the most important interests of the colony. The chief manufactures are leather, and a kind of woollen cloth called "colonial tweed," which is exceedingly durable and in high favor among the settlers. Sugar refining is carried on to a considerable extent at Sydney; and there are extensive distilleries, breweries, various sorts of mills, founderies, tallow boiling establishments, and docks, in different places throughout the colony. The people are, however, dependent upon older countries for clothing, the articles of domestic use and ornament, and those luxuries which can only be produced to advantage where labor is abundant and cheap.—The imports in 1857 were valued at £6,729,408, of which £5,511,007 were from the United Kingdom and the British colonies, and the rest from various countries, including articles amounting to about £800,000 from the United States, consisting of tobacco, timber and pine planks, furniture, agricultural implements, clocks, tubs, pails and brooms, steam machinery, hardware, books, daguerreotype plates, and breadstuffs. The exports in the same year amounted to £4,011,952 (about £600,000 more than in 1856), of which £3,676,418 were to the United Kingdom and British colonies, including wool to the value of £1,275,067; tallow, £82,134; skins, £113,808; and gold dust, £187,249. Beside these chief items of export, there were gums, bark, copper ore, timber, and a large number of minor articles of raw produce. The remarkable difference that appears between the amount of imports and exports is occasioned by the quantity of gold which is coined at the Australian mint at Sydney, and which leaves New South Wales for circulation in the neighboring colonies, and as a remittance to other parts of the world, without appearing among the exports, and by the large numbers of horses, horned cattle, and sheep driven across the frontier to find a market in Victoria. Gold in its natural state is subject to a duty of 2s. 6d. an ounce upon leaving the colony, and so appears in the custom house returns; but the coined gold, having already paid this tax in the shape of mint charges, is allowed to pass unnoticed. Some of the imports from the neighboring colonies, the whole produce of the whale fisheries, and the greater part of what is received from the South sea, are merely transshipped in the ports of New South Wales while *in transitu* to other parts of the world. In 1857, 1,100 vessels of 351,418 tons entered the port of Sydney, and 1,204 of 377,147 tons cleared. Of these arrivals and departures, nearly $\frac{3}{4}$ were under the British flag. In 1858, 73 American vessels arrived with goods valued at $7,922,855, nearly $2,000,000 of which came from the United States, in the proportion of $\frac{7}{8}$ from the Atlantic side, and $\frac{1}{8}$ from the Pacific. The value of the exports to the United States during the same period was about $48,000.—A railway was projected in 1846 to connect Sydney with the capital of the neighboring colony of Victoria. The line has been opened for traffic as far as Liverpool, and for the present it is only intended to carry it to Goulburn, 125 m. from Sydney. Another railway has been opened connecting the chief towns in the valley of the Hunter with the port of Newcastle at the mouth of that river. There are several good roads in New South Wales, and the mails are carried over 1,023,255 m., though often over mere pathways, throughout the colony. There are 155 post offices, and the number of letters that passed through the general post office at Sydney in 1855 was 2,114,179, and of newspapers 2,100,989; the postal income was £24,-902, and the expenditure £60,091. In 1855, 127,952 acres of public land were sold at an average of about £2 an acre. This land was divided into 5,910 lots, of which 3,462 were town allotments, 1,114 suburban, 1,244 country, and 90 special country. The present minimum price is fixed at £1 per acre. The effect of the present system is almost virtually to prevent laboring men and small capitalists from becoming land owners; but the growing dissatisfaction with it must soon cause its abrogation.—The colony of New South Wales possesses an excellent observatory, a university at Sydney, a Roman Catholic college, and numerous schools; a branch of the London mint, which issues Australian gold coin current in all the neighboring colonies, and in Mauritius, Ceylon, and Hong Kong; floral and horticultural and agricultural societies; a botanical garden containing most plants known in both tropical and temperate regions; hospitals and asylums, both benevolent and lunatic; and many public buildings, and works of great extent constructed chiefly by convict labor. The public press includes two daily newspapers and several other periodicals published at Sydney, and newspapers at Maitland, Bathurst, Goulburn, and other places. Sydney is the seat of the Australian metropolitan bishop. A new see was created in 1859 at Brisbane, capital of Queensland, on occasion of the separation of that colony from New South Wales. The government consists of a governor appointed by the crown, an executive council chosen by the governor, and two houses of legislature, one nominated by the governor and called the legislative council, and the other elected by the people and called the legislative assembly. No allowance is paid to any of these members, except to those of the ministry or executive council, which is composed of the colonial secretary, the treasurer, the solicitor-general and attorney-general, and the minister of lands and public works. These ministers are all required to possess seats in the house of assembly, and retain their offices only so long as they can secure a majority in this branch of the legislature. The qualifications required for a voter are that he should be a householder, or if living in lodgings that he shall be earning wages at the rate of £100 a year, and that he should have resided 6 months in the colony. All voters are eligible to membership. The house of assembly, composed of 64 members, makes laws within the colony (which provisionally extend as far N. as Cape York) not repugnant to those of Great Britain; it regulates the whole of the revenue, and makes all appropriations for the public service. Measures passed by it do not become law till they have been approved by the legislative council and the governor, who has power to dissolve the house at pleasure. The revenue of New South Wales is derived from import duties and miscellaneous taxes, and from the proceeds of the sale of public lands and licenses to depasture. The revenue in 1858 was £1,422,466, an increase of £218,733 over 1857, and £321,301 over 1856, and including £240,533 from land sales, £160,939 from other branches of the land revenue, and £43,107 from the tax on gold. The expenditures of the mother country for the colony in 1857 were £59,646. Steam communication is maintained with England *via* Melbourne, Mauritius, and the Red sea, once a month; and the legislative assembly of the colony has appropriated £50,-000 a year as a subsidy to be paid for a like service by the isthmus of Panama.—For information concerning the aborigines, the native animals, botany, geology, and history of New South Wales, see AUSTRALIA.

NEW STYLE. See CALENDAR.

NEW TESTAMENT. See BIBLE.

NEW YEAR'S DAY, the first day of the year, for many ages and in various parts of the world celebrated as a religious and social festival. With the post-biblical Jews the new year commenced and still commences with the autumnal month Tisri, the first day being celebrated by them with considerable ceremony. The Romans made an especial holiday of it, offering sacrifices to Janus, whose principal festival occurred on this day, and taking care that all they thought, said, and did should be pure and favorable, since every thing was ominous for the occurrences of the whole year. They appeared in the streets in festive garments, exchanged kindly salutations, and gave to each other presents called *strenæ*, consisting of gilt dates, figs, honey cakes, and copper coins having on one side the double head of Janus and on the other a ship. This custom of bestowing presents was made by some of the emperors an important source of their personal revenue, until modified by a decree of the emperor Claudius. The early Christian emperors however continued to receive them, notwithstanding they were condemned by the ecclesiastical councils on account of the pagan ceremonies at their presentation. Prynne in his "Histrio-Mastix," referring to the hostility of the early church to any imitation among Christians of the Roman saturnalia, says: "The whole Catholicke church appointed a solemn publike faste upon this our new yeare's day, to bewail those heathenish enterludes, sports, and lewd idolatrous practices, which had been used on it; prohibiting all Christians, under pain of excommunication, from observing the calends or first of January (which wee now call new yeare's day) as holy, and from sending abroad new yeare's gifts upon it (a custome now too frequent), it being a mere relique of paganisme and idolatry, derived from the heathen Romans' feast of two-faced Janus, and a practice so execrable unto Christians, that not onely the whole Catholicke church, but even the four famous councils of (here follows a long array of authorities) have positively prohibited the solemnization of new yeare's day, and the sending abroad of new yeare's gifts, under an anathema and excommunication." The bestowal of gifts upon new year's day was not peculiar to the Romans. The druids distributed branches of the sacred mistletoe, cut with peculiar ceremonies, as new year's gifts among the people; and the Saxons of the north, according to Bishop Stillingfleet, observed the festival with more than ordinary jollity and feasting, and by sending gifts to one another. In spite of the opposition of ecclesiastical councils, the practice continued through the middle ages; and among kings and their powerful vassals the interchange of presents was a distinguishing feature of the first day of the year. Henry III. of England is said to have extorted new year's gifts, and Queen Elizabeth's wardrobe and jewelry were probably almost wholly supplied from these annual contributions. It appears from the "Progresses and Processions" of her majesty, published by Nichols, that the lords spiritual and temporal of the realm, the chief officers of state, and the servants of the royal household down to the master cook, sergeant of the pastry, and dustman, were among the contributors to these largesses, which consisted of money, rich wearing apparel, plate, jewels, trinkets, sweetmeats, and an infinite variety of other things. Dr. Drake says that, although the queen made returns to the new year's gifts, in plate and other articles, she took care that the balance should be in her own favor. As late as 1692, as appears from the "Monthly Miscellany" for December of that year, the English nobility were accustomed, "every new year's tide," to "send to the king a purse with gold in it." Under the Tudors and Stuarts new year's gifts were given and received with mutual wishes of a happy new year among all conditions of people. An orange stuck with clover or a gilt nutmeg was a popular gift; tenants sent their landlords capons, and ladies received presents of gloves or pins, or in lieu thereof a composition in money, whence the terms "glove money" and "pin money." Brand in his "Popular Antiquities" enumerates many ceremonies and superstitious practices observed by the English and Scottish peasantry on the first day of the year, which, together with the once almost universal bestowal of gifts, have very much declined. In England the ringing in the new year from the belfries of churches is now the only open demonstration of joy at the recurrence of the anniversary. In Germany many ceremonies derived from old superstitions are in vogue; but throughout continental Europe, although the day is a universal holiday, congratulatory wishes have been generally substituted for the more substantial expressions of esteem formerly interchanged by friends. In Paris and other large cities almost incredible sums are still expended in bonbons and similar articles for presents. In the city of New York the day is made the occasion of social visits by gentlemen among the families of their acquaintance—a custom dating back almost to the settlement of the town by the Dutch, and which has been imitated with more or less success in other places in the United States.—For the religious festival of new year's day, see CIRCUMCISION, FEAST OF THE.

NEW YORK, one of the 13 original states of the American Union, and one of the middle states, situated between lat. 40° 29′ 40″ and 45° 0′ 42″ N., and long. 71° 51′ and 79° 47′ 25″ W.; extreme length E. and W. 412 m., breadth varying from 8 or 10 m. on Long island and 18¾ m. at the W. extremity of the state, to 311¾ m. from the Canada boundary to the S. point of Staten island; area, 50,519 sq. m., or 32,332,160 acres. It is bounded N. by Canada West (from which it is separated by Lakes Erie and Ontario and the river St. Lawrence), and by Canada East and Long Island sound; E. by Vermont (from which it is separated in part by Lake Champlain), Massachusetts, Connecticut, and the Atlantic ocean; S. by the Atlantic, New Jersey, and Pennsylvania; and W. by New Jersey, Pennsylvania, and Canada West. It is divided into 60 counties, viz.: Albany, Alleghany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, and Yates. The cities, in the order of their population, are New York, Brooklyn, Buffalo, Albany (the capital), Rochester, Troy, Syracuse, Utica, Oswego, Poughkeepsie, Auburn, Schenectady, and Hudson. The state contains numerous large towns or villages, among the largest of which, in their order of population, are Newburg, Lockport, Binghamton, Elmira, West Troy, Yonkers, Ogdensburg, Rome, Cohoes, Rondout, Watertown, Saratoga Springs, Geneva, Ithaca, Dunkirk, Seneca Falls, Canandaigua, Lansingburg, Potsdam, Little Falls, Kingston, Corning, Peekskill, Flushing, Glen's Falls, Saugerties, Greenbush, Whitehall, Lyons, Astoria, Fulton, Waterford, Waterloo, Owego, Port Jervis, Tarrytown, and Niagara Falls. Each of these villages contains a population of from 8,000 to 10,000.—In population New York surpasses every other state in the Union. Under the colonial government, the number of inhabitants in 1698 was 18,067; 1703, 20,665; 1723, 40,564; 1731, 50,824; 1737, 60,437; 1746, 61,589; 1749, 73,348; 1756, 96,790; 1771, 168,337. The results of the U. S. decennial censuses have been as follows:

Census years.	Whites.	Free colored.	Slaves.	Total.
1790...............	314,142	4,654	21,324	340,120
1800...............	556,039	10,374	20,343	586,756
1810...............	918,699	25,333	15,017	959,049
1820...............	1,332,744	29,980	10,088	1,372,812
1830...............	1,873,663	44,870	75	1,918,608
1840...............	2,378,890	50,027	4	2,428,921
1850...............	3,048,325	49,069	....	3,097,394
1860...............	....	....	....	3,851,563

Censuses have also been taken by the state as follows: 1814 (total population), 1,035,910; 1825, 1,614,456; 1835, 2,174,517; 1845, 2,604,495; 1855, 3,466,212. Increase of population from 1698 to 1771, or during a colonial period of 73 years, 804.06 per cent., or at the rate of 11.014 per cent. per annum. Increase from 1790 to 1850, or during a period of 60 years, 810.67 per cent., or 13.51 per cent. per annum; 1840 to 1850, 27.52 per cent., or 2.75 per cent. per annum; 1850 to 1855, 11.91 per cent., or 2.38 per cent. per annum; and 1855 to 1860, 11.12 per cent., or 2.22 per cent. per annum. Of the total population in 1855, 1,727,650 were males and 1,738,562 females; of the whites, 1,706,273 males and 1,714,658 females; of the colored, 21,377 males and 23,909 females. Ages: under 5 years, 471,619; 5 and under 10, 394,881; 10 and under 15, 374,545; 15 and under 20, 358,942; 20 and under 25, 363,214; 25 and under 30, 325,077; 30 and under 35, 274,589; 35 and under 40, 214,898; 40 and under 45, 180,257; 45 and under 50, 138,392; 50 and under 60, 196,802; 60 and under 70, 108,040; 70 and under 80, 45,017; 80 and under 90, 12,258; 90 and under 100, 1,549; over 100, 91; unknown, 6,532. Natives of the United States, 2,528,444, of whom 2,222,321 were born in New York, and 35,923 in other states; of foreign countries, 922,396, of whom 50,608 were born in British America, 138,866 in Great Britain, 469,753 in Ireland, 236,546 in Germany, 18,366 in France, and 18,756 in other countries; unknown, 17,238. During the year ending June 1, 1855, the births were 102,522; deaths, 46,297; marriages, 21,551. By the same census, the occupations of 588,293 persons were returned, as follows: agriculture 318,980; commerce, trade, manufactures, mechanic arts, and mining, 312,697; labor not agricultural, 196,613; army, 1,462; sea and river navigation, 23,242; law, medicine, and divinity, 14,258; other pursuits requiring education, 11,104; government civil service, 4,985; domestic service, 6,324; other occupations, 3,628. Deaf and dumb, 1,422; blind, 1,136; insane, 2,742; idiotic, 1,812. Number of families, 663,124; freeholders, 361,018; dwellings, 522,325. Density of population, 68.61 to the square mile.—The outlines of the state are very irregular, only about one third of the entire boundaries consisting of right lines. Omitting Long island, the state somewhat resembles a congress boot, the heel being at New York city, and the toe at Chautauqua county. If the Pennsylvania line were produced to the E. boundary, it would divide the state into two triangles. The river, lake, and ocean boundaries are all navigable waters, except 17¼ m. on Poultney river, and consist of 352 m. on Lakes Erie, Ontario, and Champlain; 281¼ m. on the St. Lawrence, Poultney, Hudson, Kill Van Kull, Delaware, and Niagara rivers; and 246 m. on Long Island sound and the Atlantic ocean. The boundaries along Canada, Vermont, Massachusetts, Connecticut, New Jersey, and Pennsylvania, all made up of right lines, form a total of 541.28 m. The principal islands belonging to the state are the following: in Niagara river, Grand, Squaw, Strawberry, Rattlesnake, Tonawanda, Beaver, Buckhorn, Cayuga, and Goat; in the St. Lawrence, Carlton, Grenadier, Fox, Wells, Grindstone, a large number of the Thousand islands, and Gallup; in Lake Champlain, Valcour, Crab, and Schuyler; in New York bay, the Atlantic ocean, and Long Island sound, New York, Staten, Long, Gardner's, Shelter, Plum, Fisher's, all the islands between Long island and Connecticut to within a few rods of the Connecticut shore, Sunken Meadow, Randall's, Ward's, Blackwell's, Governor's, Bedloe's, and Ellis. The last 3 are owned by the general government, and occupied as U. S. military posts. New York bay and harbor is sufficiently deep and capacious to accommodate all the shipping belonging to and trading with the port of New York. The other principal harbors are Dunkirk and Buffalo, on Lake Erie; Tonawanda and Lewiston on Niagara river; Genesee, Sodus, Oswego, Sackett's Harbor, and Cape Vincent on Lake Ontario; Ogdensburg on the St. Lawrence; Rouse's Point, Plattsburg, and Whitehall on Lake Champlain; and Sag Harbor at the E. end of Long island. The principal river of the state is the Hudson, which is navigable to Troy, 160 m. from its mouth. The St. Lawrence and Niagara on the N. and W. boundaries are also navigable. The Mohawk, the principal affluent of the Hudson, is a sluggish stream about 150 m. long, rising in the interior of the state and entering the Hudson at Waterford; it affords extensive water power at Little Falls and Cohoes. Its principal branches are West and East Canada creeks from the north, and Schoharie creek from the south. Oswego river, which receives the waters of all the interior lakes, from Oneida and Cazenovia on the E. to Crooked and Canandaigua on the W., furnishes with its branches and tributaries, good water power at Penn Yan, on Crooked Lake outlet; at Waterloo, Seneca Falls, and Baldwinsville, on Seneca river; at Phelps, on Flint creek and Canandaigua outlet; at Auburn on Owasco outlet; almost the entire length of Skaneateles outlet (the fall being 453 feet in 9 m.); at Cazenovia and Chittenango, on Chittenango creek; and at Fulton and Oswego, on Oswego river. The Alleghany, Susquehanna, and Delaware, with numerous branches, drain the western, central, and eastern portions respectively of the S. part of the state, and furnish valuable and important water power at numerous points within the state. Cattaraugus and Tonawanda creeks are also considerable streams in the W. part of the state, the former furnishing important water power at numerous points, and the latter affording slack-water navigation for the Erie canal for about 10 m. from its mouth. The other principal streams are Buffalo creek, flowing into Lake Erie; Oak Orchard creek, Salmon and Black rivers, flowing into Lake Ontario; Oswegatchie, Grasse, and Racket rivers, tributaries of the St. Lawrence; Chazy, Saranac, and Au Sable rivers, and Wood creek, rapid streams or mountain torrents flowing into Lake Champlain, and furnishing almost unlimited water power; Susquehanna river, which rises in Otsego lake, and in its course in the state receives the waters of Charlotte, Unadilla, and Chenango rivers; and Chemung river, which drains a portion of the state between the Alleghany and Susquehanna, and receives the waters of Canisteo, Conhocton, and Tioga rivers. The principal branches of the Delaware are Popacton and Neversink rivers.—The state is noted for the great number of beautiful lakes in the interior and N. E. parts. The principal of these are Chautauqua and Cattaraugus, in the W.; Hemlock, Honeoye, Canadice, and Conesus in the Genesee basin, which discharge their waters into Genesee river; Crooked, Canandaigua, Seneca, Cayuga, Owasco, Skaneateles, Cross, Onondaga, Otisco, Cazenovia, and Oneida, in the central part of the state, all of which find an outlet for their waters through Oswego river; Otsego and Schuyler, which empty into the Susquehanna; and Schroon, George, Avalanche, Colden, Henderson, Sandford, Eckford, the Fulton lakes (8 in number), Racket, Forked, Newcomb, Long, Cranberry, Upper Saranac, Lower Saranac, Tupper's, Rich, Pleasant, and numerous other small lakes in the N. E. part. Canandaigua, Crooked, Seneca, Cayuga, Owasco, Onondaga, Skaneateles, Chautauqua, Otsego, and Oneida lakes, and Lake George, are all navigable for boats and steamers, and on many of them considerable trade is carried on. Lakes Erie, Ontario, and Champlain are navigable for vessels of all sizes. Seneca lake never freezes, and hence steamers ply upon it throughout the year. The scenery of these lakes is world-renowned, and attracts thousands of pleasure seekers during the summer months.—The surface of the state is greatly diversified. Three distinct mountain ranges enter it from the S. and extend across it in a general N. E. direction. The most easterly of these ranges, a continuation of the Blue Ridge of Virginia, extends N. E. through Rockland, Orange, Putnam, and Dutchess counties, forming the highlands of the Hudson. The highest peaks of this range are Beacon hill, Dutchess co., 1,685 ft. high; Bull hill, Putnam co., 1,586 ft.; Butter hill, Orange co., 1,529 ft.; Old Beacon, Putnam co., 1,471 ft.; Crow Nest, Orange co., 1,418 ft.; Bear mount, Orange co., 1,350 ft.; Anthony's Nose, Putnam co., 1,228 ft.; and Breakneck, Orange co., 1,187 ft. high. The second range extends N. E. through Sullivan, Ulster, and Greene counties, terminating and culminating in the Catskill mountains on the Hudson. The highest peaks are Round Top, High Peak, and Pine Orchard, Greene co., respectively 3,804, 3,718, and 3,000 ft. high; and Rockland mount and Walnut hill, Sullivan co., 2,400 and 1,980 ft. high. The Shawangunk mountains, a high and continuous ridge between Sullivan and Orange counties, extending into the S. part of Ulster co., are the extreme E. spur of this range; and the Helderberg and Hellibark mountains are spurs extending N. from the main range into Albany and Schoharie counties. The third range extends N. E. through Broome, Delaware, Otsego, Schoharie, Montgomery, and Herkimer counties to the Mohawk, reappears on the N. side of the river, and extends N. E. to Lake Champlain, forming the mountain region in the N. E. part of the state known as the Adirondac mountain region. S. of the Mohawk this range assumes the form of broad, irregular hills; N. of the stream it is broken into several distinct spurs or ranges, all terminating upon Lake Champlain. (See ADIRONDAC MOUNTAINS.) Ranges of hills forming spurs of the Alleghanies occupy the S. part of the W. half of the state. The water-shed that separates the northern from the southern drainage of western New York extends in an irregular line through the most southerly counties. That portion of the state S. of this water-shed, and embracing the greater part of the two southerly tiers of counties, is almost entirely a hilly country. The highest summits W. of the Susquehanna are in Alleghany and Cattaraugus counties, and are [illegible] to 3,000 feet above tide. N. of the water-shed the face of the country descends in a series of rolling and smooth terraces toward Lake Ontario, the region between the hills of the S. and the level lands of the N. being a beautiful rolling country. S. of the highlands the surface is generally level or broken by low hills. The river system of the state consists of two general divisions, viz.: that part drained by the great lakes and the St. Lawrence, northerly; and that part drained by the Hudson and other rivers, southerly. The water-shed between these two divisions extends in an irregular line from Lake Erie eastward through the southern tier of counties to near the N. E. corner of Chemung co., thence N. E. to the Adirondac mountains in Essex co., thence S. E. to the E. extremity of Lake George, and thence nearly due E. to the E. line of the state. The northern of these divisions consists of 5 subdivisions or basins, viz.: the basin drained by Lake Erie, Niagara river, and Lake Ontario W. of Genesee river; the basin of Genesee river and its tributaries; the basin of Oswego river and its tributaries, and the small streams flowing into Lake Ontario between Genesee and Oswego rivers; the basin of the St. Lawrence and the streams flowing into Lake Ontario E. of Oswego river; and the basin drained by Lakes George and Champlain. The southern division consists of 4 subdivisions, viz.: the Alleghany basin, the Susquehanna basin, the Delaware basin, and the basin of the Hudson.—The state of New York presents a very complete series of the older rock formations, from the azoic up to the lower members of the carboniferous; but the groups of later age are not represented in the state, with few exceptions. The red sandstone of the middle secondary extends from N. E. New Jersey over Rockland co., terminating at the Palisades of trap on the W. side of Tappan bay. Some tertiary deposits of the pliocene period, which are of little extent, are found on the borders of the St. Lawrence river and Lake Champlain; and again the drift, or bowlder formation, overspreads the whole state, and is developed over Long island in beds of sand, gravel, and clays of such depth, that the rocky ledges are everywhere concealed from view except in a few points where the gneiss is laid bare on the shore of the East river opposite New York island. The great metamorphic belt of the eastern states passes into New York all along its eastern line, and to the N. of the Mohawk river it branches off over nearly all the rugged country which lies between Lake Ontario and Lake Champlain. In this district are the Adirondac mountains, which have already been described under their own name. The granitic and hypersthene rocks of which they consist spread almost to the St. Lawrence, from which the tract is separated by a belt of the Potsdam sandstone, which passes through the town of that name in St. Lawrence co., and encircles the great district of azoic rocks on its N. and W. sides; and next to this, bordering the St. Lawrence, the calciferous sandrock overlies the Potsdam sandstone. The birdseye, Black river, and Trenton limestones of the next upper group of rocks form a considerable portion of Jefferson co. on the E. end of Lake Ontario, and the strata extend along the S. W. border of the azoic district through the centre of Lewis co., following the S. W. side of the Black river to Norway in Herkimer co. The same calcareous rocks form the S. E. boundary of the azoic tract, extending in a narrow belt from the S. W. to the N. E. corner of Saratoga co., and thence to Whitehall on the border of Vermont. The district of azoic rocks is also skirted along the W. shore of Lake Champlain by the same limestones, the broadest outspread of which is against the N. half of the lake, and the Potsdam sandstone also appears in several places on this side. The region thus encircled is the great iron ore district of northern New York. Beds of magnetic and specular ores are worked chiefly near Lake Champlain and in the S. W. part of St. Lawrence co.; and in the latter vicinity are the most promising lead mines E. of Wisconsin, though they are not now worked. The country lying E. of the Hudson river consists of the lower members of the New York system of rocks more or less metamorphosed, the sandstone passing into quartz rock, the blue stratified limestone into the crystalline and white marbles, and the argillaceous slates of the Hudson river group into silicious, talcose, and micaceous slates. These changes, most complete on the E. and S. E. side of the belt in Massachusetts and Connecticut, and along its continuation on the course of the highlands across S. E. New York, gradually disappear toward the Hudson in Columbia and Rensselaer cos. The unaltered silurian rocks cross the Hudson river in a belt reaching from the lower corner of Dutchess co. to Rondout in Ulster co., and extend into the N. E. portion of New Jersey. The metamorphic formations, consisting of the slates and gneiss with occasional beds of crystalline limestone or marble, occupy the counties of Putnam and Westchester, and the S. E. portion of Orange co. New York island consists of gneiss, and the same formation stretches across Staten island toward its reappearance near Trenton, N. J. The formation is split or rather covered along its S. E. half by the secondary red sandstone, which, commencing at Tappan bay, ranges through Rockland co. and across New Jersey into Pennsylvania. This group of altered rocks is the repository of valuable beds of hematite iron ore, numbers of which have been extensively worked near the line of Massachusetts and Connecticut. (See HEMATITE.) In the highlands are many beds of magnetic iron ore, as noticed in the article IRON. Numerous beds of white marble also are worked at several localities, for an account of which see MARBLE. It is in the Hudson river slates or lower silurian limestones that the mineral springs of Saratoga, Ballston, Sharon, and other places in this part of the country are found. As the rocks of the Appalachian system are traced from Pennsylvania and New Jersey, those of a later period than the Hudson river slates, instead of crossing the river on the general range of the outcrop toward the N. E., are deflected toward the N. W. before reaching the Mohawk river, the great development of azoic rocks in the northern part of the state seeming to split and turn aside these stratified formations.

This is the case with all that group of silurian rocks which make up the Shawangunk mountains, and pursue their course regularly with this ridge from the N. W. corner of New Jersey to the Hudson river at Rondout. The summit and W. slope of the mountains are covered with the hard silicious sandstone, called the Oneida conglomerate or Shawangunk grit, dipping toward the west, and overlying the Hudson river slates that occupy the central portion of the ridge. In the valley W. of the mountains are the limestones and shales of the Helderberg and Hamilton groups. These rocks as they approach the Hudson river, sweeping around to the W., traverse together the great length of the state and pass across the head of the Niagara river into Canada. The Oneida conglomerate appears again in Oswego co., running out to a point in Oneida co.; and between this and the long line of outcrop of the Helderberg and Hamilton groups on the S. are interposed the several intermediate formations. These are the Medina sandstone, stretching along the whole S. shore of Lake Ontario and part of Oneida lake to the N.; the Clinton group of red and variegated shales and sandstones, including in its E. and W. range the whole of Oneida lake, and reaching in a narrow belt from Schoharie co. across the Niagara river; the Niagara limestone and shale, the outcrop of which is on the S. side of the Clinton group from Oneida lake west; and lastly the Onondaga salt group, consisting of calcareous shales, gypseous marls, &c., extending from Sharon in Schoharie co. past Syracuse, and thence due W. across the Niagara river. In these formations the valuable mineral productions are the lead and copper ores of the Shawangunk grit (see LEAD), the fossiliferous iron ores of the Clinton group near Oneida lake, and the salt wells and gypsum beds of the Onondaga salt group.—Overlying the Hamilton group, the next formation on the W. and the S. is the series of sandstones, slates, and shales comprised in the Portage and Chemung groups. These overspread the whole southern portion of New York as far E. as the state of Pennsylvania extends, and toward the N. E. the formation reaches into Greene and Albany cos. Its northern line is along the N. portion of Wyoming co. and across the middle portions of Seneca and Cayuga lakes. In Delaware, Greene, Sullivan, and parts of Ulster and Broome cos., the red and gray sandstones of the Catskill group overspread the Portage and Chemung rocks; and upon some of the Catskills, and at a few localities in Delaware and Sullivan cos., the millstone grit or conglomerate, which forms the floor of the coal formation, caps the highest summits. Had these hills been 100 feet higher, they would have included one or more of the lower coal beds. (See CATSKILL MOUNTAINS.) This is the nearest approach in New York to the carboniferous formation. In Pennsylvania beds of coal are found within 6 m. of the line of the state; but the gentle rising of the strata toward the N. brings the lower formations of the Portage and Chemung groups to the surface before reaching the state line. The Portage, underlying the shales of the Chemung, chiefly consists of thin-bedded sandstones of close grain and of gray and bluish colors. These are quarried in Ulster, Greene, Seneca, and Albany cos. for flagging stones, and are sent to New York to the amount of several million feet annually. They are shipped from Kingston, Saugerties, Coxsackie, Bristol, and New Baltimore. The formation also affords grindstones, which are quarried at different parts of its range. In the western part of the state the sandstones are sometimes of a bituminous character. At Rockville in Alleghany co., as stated by Prof. Hall, the clothes of the quarrymen even acquire the odor of bitumen, and the water of the springs, though clear, tastes of the same substance. At a number of places in Alleghany, Cattaraugus, and Chautauqua cos., springs of petroleum or rock oil issue from the rocks of this group, and jets of carburetted hydrogen gas sometimes accompany the oil, and are also seen bubbling up in the standing and running waters, especially of Cattaraugus co. A few miles above La Grange the gas is reported to be sufficient to maintain a constant flame. At Fredonia in Chautauqua co. the supply is so abundant that it has long been used for lighting the town. The lighthouse at Portland on Lake Erie is supplied with it, and near Forrestville it is also in sufficient quantity for economical application. The petroleum, which until recently has been deemed of little importance, is attracting more interest since the great developments of this useful oil in the neighboring region of Pennsylvania, and operations are already commenced for testing the capacity of the springs at Cuba in Alleghany co. and other points. (See PETROLEUM.)—The rock formations from the Potsdam sandstone up, which have been named, together with their various subdivisions, constitute what is called the New York system, and with the carboniferous group complete the Appalachian system. Though the whole series is found in Pennsylvania, the formations below the carboniferous are more fully developed in New York, and are especially richer in fossils. In this state therefore they have been studied to the best advantage, and when recognized in other parts of the country are generally known by the names given to them by the New York geologists. The series is presented in tabular form in the article GEOLOGY (vol. viii. p. 157). Except in the N. and E. portions of the state, the formations lie but slightly inclined from the horizontal; but the general dip being toward the S., lower formations constantly appear as one travels from Pennsylvania northward. Many of the groups are in great part made up of limestones, and even among the shales and slates of the others calcareous strata are of frequent occurrence. The effect of this wide distribution of calcareous matter has been to insure a general fertility of soil, and to give to New York a high position among the agricultural states of the Union.—The soil and temperature of New York are well adapted to the successful cultivation of most of the crops and fruits of the temperate zone. Somewhat more than one half of the total area of the state is improved and under successful cultivation; 37 per cent. of the improved land is devoted to pasturage, 25 per cent. to meadow lands, 37 per cent. to the raising of oats, Indian corn, wheat, buckwheat, rye, and barley, and 1 per cent. to the minor crops and gardens. In the northern counties and the highland regions along the S. border and upon the Hudson, stock and sheep raising and dairy farming are the almost exclusive agricultural pursuits; while the low lands that form the greater part of the surface of the W. portion of the state are best adapted to grain growing. Broom corn has long been the staple crop of the Mohawk valley intervales; tobacco is extensively raised in the Chemung valley, and parts of Onondaga and Wayne cos.; hops are a leading product of Madison, Oneida, Otsego, and Schoharie cos.; grapes are successfully cultivated in the valley of the Hudson below the highlands, on the N. shore of Long island, and in several of the lake valleys in the central part of the state. Maple sugar is an important product of the northern and central portions; and fruits, particularly apples, peaches, pears, and strawberries, are grown in the western counties N. of the water-shed. Large tracts in the vicinity of New York city are devoted to market gardens and to furnishing the city with milk. The climate, being modified and governed by the configuration of the surface, latitude, elevations above tide, character of soil, and geological formation, possesses a wider range than that of any other state in the Union. Those portions affected by the winds from the ocean, sound, and lakes are more even in temperature and suffer less severely from the late frosts of spring and the early frosts of autumn than any other portions of country in the same latitude not thus affected. The mean temperature of the state, as determined from observations made at 58 meteorological stations, for periods ranging from 1 to 25 years, is 46.49°. The mean length of the season of vegetation, from the first blooming of apples to the first killing frost, is 174 days; while on Long island it is 12½ days longer, and in St. Lawrence co. 22 days shorter. The mean annual fall of water in the forms of rain and snow is 40.98 inches.—The most noted waterfalls in the state are Niagara falls, in Niagara river, 2,900 ft. wide and 163 ft. high; Portage falls in Genesee river, consisting of 2 falls, of 70 ft. and 110 ft. and a series of rapids 150 ft.; Genesee falls in Genesee river, at and below Rochester, consisting of 3 falls, of 96 ft., 25 ft., and 84 ft., within a distance of 2½ m.; Trenton falls, in West Canada creek, Herkimer co., consisting of 5 cascades with a total fall of 200 ft. in ½ m.; Taghanic falls, Tompkins co., 230 ft.; Chittenango falls in Chittenango creek, Madison co., 136 ft.; Lyons falls, in Black river, Lewis co., flowing down an inclined plane 63 ft. at an angle of 60°; Kaaterskill falls, Greene co., consisting of 2 falls, 175 ft. and 85 ft.; Baker's falls, Washington co., consisting of a succession of falls and rapids, having a total descent of 76 ft. in 60 rods; Cohoes falls in the Mohawk, near its mouth, with a total fall including rapids of 103 ft.; Glen's falls, Warren co., 50 ft.; High falls, in the Hudson, Warren co., 60 ft.; High falls, Ulster co., 50 ft.; the Au Sable falls, in Wilmington, Essex co., 100 ft.; Enfield falls, Tompkins co., consisting of a series of cascades with a total fall of 230 ft.; Buttermilk falls, Genesee co., 90 ft.; and the falls in Fall creek, Tompkins co., consisting of 5 falls with a total descent of over 500 ft. in 1 m. In East Canada creek, about 2½ m. from its mouth, is a series of cascades and rapids, having a total fall of 75 ft. in 80 rods. Upon Stone Bridge creek, Warren co., is a natural bridge 40 ft. high, 80 ft. broad, and 247 ft. long. Dover Stone church, Dutchess co., is a ravine 25 ft. wide at the bottom, 1 to 3 ft. wide at the top, about 40 ft. long, and 40 to 50 ft. high. Near Kyserike, Ulster co., is a cave which has been explored ½ m. from its entrance. On Black river, at Lyon's falls, are the "Pictured Rocks;" and in Onondaga co. are the "Cratean Lakes" and "Green Lakes." The principal mineral and medicinal springs are the salt springs of Onondaga co., from which over 7,000,000 bushels of salt are annually manufactured; Saratoga Springs; New Lebanon and Stockport, Columbia co.; Massena, St. Lawrence co.; Richfield, Otsego co.; Avon, Livingston co.; Clifton, Ontario co.; Sharon, Schoharie co.; Chittenango, Madison co.; and Alabama, Genesee co. The Lake ridge, a slight elevation resembling an ancient shore or beach, extends from near Niagara river into Monroe co., at a distance of 4 to 8 m. from Lake Ontario. East of Genesee river this ridge is not continuous, but its line may be traced nearly the whole distance to the St. Lawrence near its point of egress from the lake. A second ridge, called "the Mountain ridge," a few miles S. of the Lake ridge, extends from Canada West across Niagara river, just above Lewiston, and nearly parallel to the shore of Lake Ontario into St. Lawrence co.; and down this ridge flow all the larger streams that empty into Lake Ontario. "Rock City," Alleghany co., upon a summit 1,400 ft. above the surrounding valleys, consists of a tract of 40 acres covered with rocks broken into regular layers forming streets and alleys. The most remarkable public works in the state are the Croton aqueduct, supplying the city of New York with water, 8 ft. 5½ in. high, 7 ft. 5 in. wide, and 40½ m. long, costing $8,575,000; Niagara suspension bridge, 821 ft. long, 247 ft. above the water, and costing $400,000; Portage bridge, on the Buffalo and New York city railroad, 800 ft. long, 234 ft.

above the bed of Genesee river, costing $175,000, and the largest wooden structure of the kind in the world; Lewiston suspension bridge, 849 ft. long, 20 ft. wide, 60 ft. above the water, costing $58,000; Cascade bridge over the Delaware, on the New York and Erie railroad, 250 ft. long, 190 ft. high, 24 ft. wide, consisting of a single arch, and costing $70,000; the Niagara Falls hydraulic canal, ⅓ m. long; the Lockport hydraulic canal, ¾ m. long; the locks in the Erie canal at Lockport and Cohoes; the aqueduct of the Erie canal across the Mohawk near Cohoes, 1,137½ ft. long, 26 ft. high, and resting on 26 piers; and the Erie canal aqueduct across Genesee river at Rochester.—The agricultural products of the state, according to the census of 1855, were as follows: 3,256,941 tons of hay, 194,846 bushels of grass seed, 9,092,402 of wheat, 27,015,296 of oats, 3,039,438 of rye, 3,563,540 of barley, 2,481,079 of buckwheat, 19,290,692 of Indian corn, 15,191,852 of potatoes, 705,968 of peas, 244,079 of beans, 985,523 of turnips, 478,277 of carrots, 15,027 of onions, 16,662 of clover seed, 87,094 of flax seed, 4,907,556 lbs. of flax, 7,192,254 of hops, 946,503 of tobacco, 18,668,881 bushels of apples, 273,639 bbls. of cider, 4,935,816 lbs. of maple sugar, 85,092 galls. of maple molasses, 18,182 galls. of wine, 2,557,876 lbs. of honey, 138,034 of wax, 90,293,074 of butter, 88,944,250 of cheese, 20,965,861 galls. of milk sold, 9,281,959 lbs. of wool, 1,510 tons of broom corn, 1,611 bushels of grapes, 115,411 of peaches, 84,492 of dried fruit, and 65,677 of other fruits, including pears, cherries, currants, plums, berries, &c. The products of the market gardens were sold for $1,138,682, garden seeds for $40,889, fruit and ornamental trees for $142,828, eggs for $1,360,678, and miscellaneous agricultural products for $1,421,750. According to the same census, the live stock consisted of 579,715 horses, 2,254 mules, 2,105,465 neat cattle, 1,068,427 cows, 1,069,792 swine, and 3,217,024 sheep, and the poultry sold amounted to $1,076,598.—The manufacturing interests of the state are very extensive, and in many sections they surpass those of agriculture or commerce. Since the completion of the lines of internal improvements, manufactures have received more attention, and now flourishing establishments are to be found in almost every part of the state. The following table exhibits the statistics of the most important manufactures, according to the state census of 1855:

Manufactures.	Number of establishments.	Persons employed.	Capital.		Cash value of	
			Stock and real estate.	Tools and machinery.	Materials.	Manufactured products.
Agricultural tools and implements	802	2,474	$749,505	$844,855	$1,285,929	[illegible]
Metallurgy	4,788	83,946	10,078,805	6,426,878	21,806,828	[illegible]
Fibrous and textile substances	889	19,669	5,294,629	5,406,825	10,804,178	[illegible]
Chem'l processes, manufactures, and compounds	1,851	14,646	11,497,274	7,591,862	35,692,754	[illegible]
Lamps, lanterns, grates, and stoves	57	1,872	616,900	901,968	949,135	[illegible]
Steam engines, boilers, locomotives, &c.	82	4,848	1,412,800	1,218,850	2,274,757	[illegible]
Navigation and maritime implements	236	4,786	2,070,150	851,245	3,992,723	[illegible]
Mathemat'l, philosoph'l, and opt'l instruments	49	887	105,550	125,440	159,080	[illegible]
Civil engineering and architecture	554	5,317	1,606,080	443,511	1,057,808	[illegible]
All kinds of wheel carriages, railroad cars, &c.	1,462	8,262	2,205,432	819,154	2,810,609	[illegible]
Pumps, fire engines, and bellows	44	511	99,960	79,465	261,656	[illegible]
Levers, screws, scales, and other mechan'l powers	12	79	27,950	18,100	41,121	[illegible]
Grinding mills, mill gearing, &c.	1,518	3,684	8,159,940	2,178,856	42,856,568	[illegible]
Lumber, and tools and machines for its manufacture	6,704	21,514	9,951,174	3,004,875	12,906,957	[illegible]
Stone, clay, pottery, and glass manufacture	865	12,318	8,895,690	1,182,854	2,248,609	[illegible]
Leather and leather goods	3,015	19,842	4,489,182	956,917	14,921,705	[illegible]
Household furniture and domestic implements and machines	959	9,679	1,977,279	859,994	3,795,257	[illegible]
In the polite, fine, and ornamental arts	882	6,981	2,426,717	2,005,209	3,871,788	[illegible]
Firearms, implements of war, powder and shot	76	598	172,145	140,640	569,734	[illegible]
Surgical, medical, and dental instruments, &c.	86	211	111,250	19,000	73,549	[illegible]
Wearing apparel and toilet articles not chemical	1,010	38,196	2,504,878	791,649	12,654,115	[illegible]
Miscellaneous manufactures	497	6,190	1,782,672	1,112,531	5,869,969	[illegible]
Total	24,833	214,899	71,180,407	35,219,570	$173,894,389	$317,[illegible]

—The position of New York gives it peculiar facilities for maritime affairs, and through its ports a large proportion of the commerce of the nation is carried on. The federal government has established 11 districts within the state for the collection of revenues, and the principal offices in these districts are located severally at Sag Harbor, New York, Plattsburg, Ogdensburg, Cape Vincent, Sackett's Harbor, Oswego, Rochester, Lewiston, Buffalo, and Dunkirk. The total amount of customs collected at all the ports of entry in the United States for the year 1857 was $63,875,905.05, of which sum $42,510,753.79 was collected at the offices in this state. The total tonnage of the United States for the year ending June 30, 1859, was 5,145,037 tons, of which amount 1,629,451 tons belonged to the ports of New York. The movement of shipping in the state in that year was as follows:

Flags.	Entered.		Cleared.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
American	5,457	2,907,786	4,798	[illegible]
Foreign	4,999	1,305,279	4,877	[illegible]
Total	10,456	4,212,065	[illegible]	[illegible]

Value of imports, $229,181,349, of which $1[illegible]816,984 was in American vessels; value of exports, $104,726,546, of which $59,295,645 was in American vessels. In the same year, [illegible] vessels were built in the state, with an aggregate burden of 16,814 tons. The statistics of the Canada trade for the year ending June 30, 1858, present the following results: value of imports from the Canadas, duty free, into the United States, $14,752,255; into New York state, $7,918,092; value of exports to the Canadas paying duties, from the United States, $23,651,727; from New York, $15,806,519. Vessels entered from Canadian ports in 1858: American 2,566, foreign 3,280, total 5,846; cleared: American 2,564, foreign 3,549, total 6,113. Tonnage entered: American 1,136,532, foreign 703,398, total 1,839,930; cleared: American 1,124,041, foreign 698,768, total 1,822,809.—The fisheries of the state are quite subordinate to the other branches of industry. On June 30, 1859, only 8,758 tons of shipping belonging to this state were employed in the whale fisheries, while the total of whaling vessels in the United States at the same date was 185,728 tons. Large numbers of fishermen obtain a livelihood from the fisheries on the shores and in the bays of Long island; while about $100,000 worth of shad are annually taken in the Hudson below the highlands, and $20,000 worth of sturgeon from the same river are annually sold in the Albany markets. There are also extensive fisheries on the great lakes, especially near the E. end of Lake Ontario; and in Chaumont bay 10,000 bbls. of herring and whitefish have been taken in a single season.—The following table exhibits the extent and cost of the railroads lying wholly or partly in the state on Oct. 1, 1859:

Railroad corporations.	Length of road laid in miles.	Cost of roads and equipments.
Albany, Vermont, and Canada..	38.00	....
Albany and West Stockbridge..	38.00	$2,392,984 22
Black River and Utica.........	34.94	1,237,558 57
Blossburg and Corning.........	14.81	496,661 28
Buffalo, New York, and Erie...	142.00	3,150,762 14
Buffalo and State Line.........	68.34	2,779,994 06
Cayuga and Susquehanna......	34.61	....
Chemung.....................	17.36	400,000 00
Elmira, Jefferson, and Canandaigua.....................	46.84	....
Genesee Valley..............	15.50	329,224 92
Hudson and Boston............	17.33	175,000 00
Hudson River.................	144.00	11,888,279 64
Long Island..................	99.00	2,566,270 07
New York Central.............	555.88	30,840,718 71
New York and Erie............	446.00	35,320,907 19
New York and Flushing........	12.00	....
New York and Harlem..........	130.75	6,019,671 19
New York and New Haven....	62.25	5,330,486 41
Niagara Bridge and Canandaigua	99.00	....
Northern.....................	118.00	4,799,287 42
Oswego and Syracuse..........	35.91	775,677 37
Plattsburg and Montreal.......	20.00	....
Potsdam and Watertown.......	75.36	1,594,955 99
Rensselaer and Saratoga........	25.22	901,025 53
Rochester and Genesee Valley..	18.45	658,927 37
Sackett's Harbor and Ellisburg.	18.00	....
Saratoga and Schenectady......	21.00	480,684 15
Saratoga and Whitehall.......	40.86	903,890 92
Staten Island (opened in 1860)..	....	114,014 87
Syracuse, Binghamton, and New York......................	81.00	2,851,292 80
Troy and Bennington..........	5.88	258,918 57
Troy and Boston..............	34.91	1,510,518 62
Troy and Greenbush...........	6.00	294,781 48
Troy Union...................	2.14	782,114 72
Watertown and Rome..........	96.76	2,159,502 04
Williamsport and Elmira.......	8.00	....
Total........................	2,622.10	$128,761,521 07

There are in addition 49.65 m. of horse railroad in the cities of New York and Brooklyn, costing $5,671,528.74. The capital stock of the above named roads was $89,063,200; paid in capital, $72,900,911.79; funded and floating debt, $73,118,567.42; number of passengers carried during the year ending Oct. 1, 1859, 51,886,998; number of miles travelled by passengers, 370,989,486; tons of freight carried, 3,859,283; cost of operating roads, $6,669,165.31; total earnings, $20,841,877.62; interest paid, $3,824,938.97; net income, $8,625,269.70; amount of dividends, $2,586,713. There were also 508.42 m. of railroad in progress of construction at the same date. The following table exhibits the extent of the state canals in operation, and the tolls received from the same, for the year ending Sept. 30, 1859:

Canals.	Length in miles.	Tolls.
Erie canal.....................	350.53	$1,549,205 86
Champlain canal and Glen's Falls feeder....................	78.00	103,654 79
Black River canal and improvement	90.60	5,963 02
Chenango canal................	97.00	17,801 72
Oneida Lake canal.............	6.00	701 41
Oswego canal..................	38.00	69,388 37
Baldwinsville canal............	1.00	26 03
Oneida River improvement.......	20.00	2,044 64
Seneca River towing path.......	5.00	168 82
Cayuga and Seneca canal........	22.77	17,449 54
Crooked Lake canal............	8.00	705 06
Chemung canal and feeder.......	39.00	16,868 66
Cayuga inlet..................	2.00	178 95
Genesee Valley canal and Dansville side cut.....................	118.00	28,163 98
Extension of Genesee Valley canal..	6.70	....
Navigable feeders not above named.	3.35	....
Total.....................	885.95	$1,812,310 80

The Delaware and Hudson canal, the property of an incorporated company, is 109 m. long (83 m. being in this state); the present capital of the company is $7,500,000; the tolls in 1857 amounted to $485,198.44.—The business of banking, as now pursued under the banking laws of this state, in utility and safety, is probably superior to the banking system of any other state in the Union. On Jan. 1, 1860, there were 300 banks of issue, whose condition was as follows: Liabilities: capital, $110,997,040; circulation, $37,780,266; deposits, $107,772,208; profits on hand, $11,888,946. Resources: notes, bills of exchange, &c., $237,264,819; specie, $22,026,137; real estate, $8,647,508; total, $267,938,459.—On Jan. 1, 1860, there were 97 joint stock fire insurance companies, with a capital paid in of $20,007,000; total assets, $26,323,884.21; liabilities, $2,144,558; amount received in cash premiums, $6,421,342.54; losses paid during the year, $2,681,986.08; dividends paid, $2,851,722.74; outstanding risks, $719,267,809.62. There were 82 mutual fire insurance companies, with a cash capital of $4,793,506.17; premium notes, $4,591,181.99; other assets, $527,852.16; liabilities, $95,066.43; cash premiums paid during the year, $194,408.11; losses paid, $94,501.71; outstanding risks, $87,810,910.92. There were 14 marine insurance companies, whose total assets amounted to $20,982,067.80; premiums earned, $12,939,201.68; losses and expenditures, $9,446,298.09. There were 22 fire and marine insurance companies of other states transacting business in this state; the total capital of these companies was $14,065,219; total assets, $26,161,079.65; cash premiums received in this state, $1,860,512.75; dividends paid, $1,880,268; outstanding risks, $779,801,-816.87. The life insurance companies, 8 in number, report a capital and accumulations of $12,090,815.24; cash premiums received, $1,801,184.82; premium notes received, $212,-242.02; outstanding risks for life, $68,208,270; for shorter terms, $3,944,166.82. There were 7 life insurance companies of other states transacting business in this state; these companies reported a capital and accumulations of $8,-906,999.27; cash premiums received, $1,898,-268.74; premium notes received, $558,484.88; outstanding risks for life, $65,950,851.50; for shorter terms, $3,849,690. There were also 6 foreign life insurance companies transacting business in the state; these companies had $594,000 on deposit in trust in the state insurance department.—According to the state census of 1855, there were 5,077 places of worship, of which 882 were Baptist, 85 Christian, 801 Congregational, 16 Disciples', 4 Evangelical, 100 Evangelical Lutheran, 184 Friends', 11 German Evangelical Reformed, 19 Jewish synagogues, 6 Mennonite, 1,580 Methodist, 4 Moravian, 8 New Jerusalem, 710 Presbyterian, 346 Protestant Episcopal, 1 Communion of True Inspiration, 8 Protestant (miscellaneous), 260 Reformed Dutch, 291 Roman Catholic, 8 Second Advent, 3 Shakers', 7 True Dutch, 152 union, Bethel, and free, 16 Unitarian, and 138 Universalist. The total value of churches and lots was $27,769,328; of other real estate, $3,710,816. The salaries of the clergy amounted to $2,411,-683.—According to the annual report of the superintendent of public instruction for the year ending Sept. 30, 1859, the number of public schools in the state was 11,621, of which number 827 were free schools, and the remainder were supported by income from the common school fund, state and county taxes, and district rate bills; number of school houses, 11,576; number of children between 4 and 21 years of age, 1,272,486; number of pupils in the public schools, 851,588; teachers employed, males 8,515, females 17,896; teachers employed 6 months or over, 14,659; average length of school during the year in the rural districts, 7½ months; average salaries of teachers in city schools, $385.48 per annum; in the rural districts, $15.98 per month (over ⅔ of all the teachers employed were females, and in the rural districts the compensation often included board); volumes in the school district libraries, 1,271,279; total cost of support of schools, $3,664,617.57. The school money apportioned for the year 1860 was derived from the following sources: from common school fund, $155,-000; from U. S. deposit fund, $165,000; from state school tax, $1,058,878.04. The number of private schools was 1,520, and the estimated number of pupils attending the same was 50,-000. The number of academies subject to the visitation of the board of regents of the university in 1859 was 208, from 185 of which reports were received. According to these reports, 993 teachers (481 males and 512 females) were employed; the total number of pupils in attendance during the previous year was 36,732, of which number 21,301 pursued classical studies 4 months or more. The value of buildings, lots, libraries, apparatus, and endowments was $2,694,695; and the total indebtment of all the institutions was $279,168. The income from personal property and real estate was $31,044; from tuition fees, $337,771; from the literature fund, $39,869; from regents of the university for the education of common school teachers, $15,738; from other sources, $158,990; total annual revenue, $578,412; paid salaries of teachers, $410,614; total annual expenditures, $553,818; number of volumes in libraries, 99,940. The regents of the university have made provisions for the education of teachers, by making an annual appropriation to certain academies to defray the expense of instructing a teachers' class at least 4 months or one term in each year. In 1859 teachers' classes were formed in 90 academies, and 1,804 teachers (711 males and 1,093 females) received instruction. The state normal school, situated at Albany, was established in 1844; to Sept. 1858, it had furnished tuition, for a longer or shorter period, to 3,288 pupils, of which number 1,120 (502 males and 618 females) had been graduated from the institution; the number of pupils for the scholastic year 1858–'9 was 312 (103 males and 209 females); number of graduates, 63 (21 males and 42 females); number of professors and teachers, 10. An experimental school is connected with the institution. In 1859 teachers' institutes were held in 50 counties, at which 6,766 teachers received instruction at an expense to the state of $4,931.28. The state contains 14 colleges, viz.: Columbia, at New York; Union, at Schenectady; Hamilton, at Clinton; Hobart, at Geneva; university of the city of New York; Madison university, at Hamilton; St. John's, at Fordham; university of Rochester; Troy university; Genesee college at Lima; Elmira female college; Ingham university, at Le Roy; New York state agricultural college, at Ovid; and People's college, at Havana. The last two are not yet fully in operation. The aggregate number of professors and tutors in the first 10 of these institutions (all that reported) for the scholastic year 1858–'9 was 127; number of students, 1,550; graduates, 230; volumes in libraries, 110,496; total value of buildings, lots, libraries, and apparatus, $897,989. There are 7 medical colleges in the state, viz.: college of physicians and surgeons, New York; medical department of the university of the city of New York; New York medical college; metropolitan medical college;

Albany medical college; Geneva medical college; and medical department of the university of Buffalo. Total number of professors for the year 1859, 67; students, 868; graduates, 265. The same year the state contained 10 theological seminaries, as follows: general theological seminary of the Protestant Episcopal church, New York; theological department of Hartwick seminary; theological department of Martin Luther college, Buffalo; Rochester theological seminary; St. Joseph's theological seminary, Fordham (discontinued in 1860); theological department of St. Lawrence university, Canton; theological department of Madison university, Hamilton; Auburn theological seminary; theological seminary of Associate Reformed church, Newburg; and union theological seminary, New York. Number of professors, 30; students, about 300.—The state of New York contains a large number of charitable institutions. The institution for the deaf and dumb in New York city, in 1859, reported 308 pupils, of whom 220 were supported by the state at an expense of $150 each per annum. The New York institution for the blind reported for the year ending Oct. 1, 1859, 175 pupils appointed by the state; total number of pupils about 200. The state lunatic asylum at Utica was opened in 1843, and to Jan. 1, 1859 (a period of 16 years), 5,516 patients had been treated, of whom 4,896 had been discharged, 2,226 had recovered, 801 were improved, 1,194 unimproved, 636 had died, and 89 were not insane. The number treated in 1858 was 787; average number annually for 16 years, 881. The New York state asylum for idiots at Syracuse has been in successful operation as a state institution for 6 years; average number of pupils annually, over 100; number in 1860, 140; cost of building, $75,000. The buildings for the state inebriate asylum at Binghamton are being erected. During the year 1858, 103,499 county and 22,205 town paupers were relieved or supported, of whom 13,422 (6,219 males and 7,203 females) were in poorhouses. Of the whole number relieved, 65,212 were foreigners, 4,246 were lunatics, 1,032 idiots, and 88 mutes. The total expenses for support of the poor were $1,491,891.28. The house of refuge at Randall's island during the year 1860 received about 1,000 children, of whom 550 (445 boys and 105 girls) remained at the close of the year. The western house of refuge at Rochester received 186 boys, discharged 145, 5 escaped, 3 died, and 409 remained; total number of inmates during the year, 562. There are state prisons at Sing Sing, Auburn, and Dannemora, Clinton co. The reports from these for the year 1860 show the following statistics:

	Sing Sing.	Auburn.	Clinton.	Total.
Number of convicts, Sept. 30, 1859	1,228	811	447	2,486
Received during year ending Sept. 30, 1860	487	283	114	884
Discharged, died, pardoned, and escaped	340	241	130	711
In prison, Sept. 30, 1860	1,375	853	431	2,659
Earnings	$111,640 93	$100,345 72	$26,640 92	$238,627 56
Expenses	138,135 86	81,317 60	63,252 61	282,705 57

On Sept. 30, 1860, the Sing Sing prison contained 137 female convicts. The Auburn prison contains an asylum for insane convicts, opened in Feb. 1859, from which date to Sept. 30, 1860, 69 convicts had been received, and 14 discharged. The state also contains 5 penitentiaries or workhouses, in Albany, Buffalo, Kings co. (near the south line of Brooklyn), New York (on Blackwell's island), and Onondaga co. (at Syracuse).—In 1855 the newspapers and the periodicals published in the state were as follows: 78 daily, 18 tri-weekly, 16 semi-weekly, 411 weekly, 18 semi-monthly, 113 monthly, 16 quarterly, 2 semi-annual, and 16 annual; total newspapers, 559; other periodicals, 112. For the year 1859 the organized militia was composed of 8 divisions, 26 brigades, 64 regiments, and in the aggregate 18,846 men.—The legislative department consists of a senate and assembly, the former composed of 32 members chosen by single districts every 2 years, the whole number being chosen at once, and the latter of 128 members elected annually by single districts; pay of members of the legislature, $3 a day for not more than 100 days, and mileage. The executive department consists of a governor elected for 2 years, salary $4,000 and house rent; a lieutenant-governor, elected for the same time, salary during the session of the legislature $6 a day and mileage; secretary of state, comptroller, treasurer, state engineer and surveyor, each $2,500 a year, and attorney-general, $2,000 a year, all elected by the people. The chief officers of the administrative department are a superintendent of public instruction, $2,500; 19 regents of the university, without salary; superintendent of the banking department, $5,000; superintendent of the insurance department; 3 inspectors of state prisons, each $1,600; 3 canal commissioners, each $2,000; auditor of canal department, $2,500; 3 canal appraisers, each $2,000; superintendent of weights and measures, $500; and 3 state assessors. The officers of the judiciary department are 8 judges of the court of appeals, and 33 justices of the supreme court, salary $3,500 each per annum; clerk of the court of appeals and state reporter, each $2,000. The state is divided into 2 federal judicial districts, in each of which is held a district court. The officers of this court in each district are a district judge, attorney, marshal, and clerk. These courts have nearly concurrent original jurisdiction in all matters in which the United States is a party, and in offences against the federal laws. An appeal lies from the district to the circuit court, and from thence to the U. S. supreme court. The state courts consist of a court for the trial of impeachments, the court of appeals, the supreme court, and the court of oyer and terminer. The court for the trial of impeachments is composed of the senate and the judges of the court of appeals; it is a court of record. The court of appeals is composed of 8 judges, 6 of whom constitute a quorum; it has power to correct and reverse all proceedings of the supreme court. The supreme court has general jurisdiction in law and equity, and power to review the judgments of the county courts. The county courts are held by the county judge, assisted by 2 justices of the peace elected annually for the purpose. The judge also performs the duties of surrogate; but in counties having a population of over 40,000, the legislature may provide for the election of a surrogate. County courts have jurisdiction in civil cases where the amount in dispute is not above $2,000; in actions for damages for injury to the person or trespass upon property not exceeding $500; in replevin suits of property not valued above $1,000; for foreclosure of mortgages, sale of real estate of infants, partition of lands, admeasurement of dower, satisfaction of judgments over $75, and the care and custody of lunatics and habitual drunkards. Surrogates' courts have the ordinary jurisdiction of courts of probate. Justices' courts have jurisdiction in civil suits where the amount in dispute does not exceed $100 in value; in criminal cases for imposing fines not exceeding $50, and of imprisonment in the county gaol not exceeding 6 months. The judges and justices are all elected by the people. —At the advent of the whites the S. E. part of New York was inhabited by several subordinate tribes of Indians belonging to the Algonquin race, and the remaining part of the state by the celebrated Five Nations of Iroquois stock. The names of places bequeathed by the various tribes indicate to what race they belonged; the Algonquin words being harsh and full of gutturals, while the Iroquois names are usually smooth, soft, and musical. The Five Nations included the Mohawks upon the lower Mohawk river, the Oneidas to the S. E. of Oneida lake, the Onondagas to the S. of Onondaga lake, the Cayugas on the E. bank of Cayuga lake, and the Senecas W. of Seneca lake. Iroquois war parties carried their conquests in all directions, and fought fierce battles with native tribes in the wilds of Canada, upon the prairies of the West, in the swamps of Carolina and the everglades of Florida. In 1712 the Tuscaroras, an offshoot of the Iroquois stock, after a defeat by the English settlers of Virginia, came north, settled upon the Susquehanna near the S. boundary of the state, and became incorporated in the Iroquois league; and the Indians who were bound by this compact were afterward known as the Six Nations. Samuel Champlain, the French navigator, was the first white man that ever set foot upon the soil of New York. On July 4, 1609, with two white attendants and a company of Canadian Indians, he entered the lake which bears his name, and on the 30th fought a battle on the W. shore with a band of Mohawks, and defeated them. By this act of Champlain the French incurred the hatred of the Five Nations, and hostilities between them never entirely ceased until the final overthrow of the French power in America. On Sept. 9, 1609, Henry Hudson, the English navigator in the employ of the Dutch East India company, with his little shallop Half-Moon of 80 tons, discovered the bay of New York. Three days later he entered the river which bears his name, and continued his voyage to some point between the present cities of Hudson and Albany. The land discovered by Hudson was claimed by Holland and named New Netherlands. In 1611 the states-general granted special privileges to any company which should open a trade with the natives of this region. During the next 10 years many trading voyages were made, the country was explored along the Hudson and around Long Island sound, and small trading posts were erected at Fort Orange (now Albany), and on Manhattan island. In 1621 the Dutch West India company was incorporated, and under its auspices two years afterward 18 families settled at Fort Orange, and 30 families at New Amsterdam. In 1626 Peter Minuits, the director-general, purchased Manhattan island of the natives for the value of $24. In 1629 the company passed an act enabling all who wished to obtain manorial possessions in the country. By this act the most valuable part of the company's land soon passed into the hands of individuals, and an aristocratic element was introduced. The effort to establish feudal privileges failed; but the land monopolies granted at this time led, more than two centuries afterward, to serious disturbances known as the "anti-rent difficulties." Wouter van Twiller, the successor of Minuits, appointed in 1633, was succeeded in 1638 by William Kieft. During the administration of the latter, some troubles having arisen with the natives, an attack was suddenly made by the whites upon the nearest Indian villages, and more than 100 unoffending men, women, and children were massacred. A bloody war ensued, which seriously endangered the existence of the colony. In 1647 Kieft was succeeded by Peter Stuyvesant, who immediately inaugurated a new order of things. The Indians were conciliated, and the general affairs of the colony were more systematically administered. The Dutch settlements, spreading to the east and west, came in collision with the English upon the Connecticut, and with the Swedes upon the Delaware. In 1655 Stuyvesant took forcible possession of the Swedish territory and annexed it to New Netherlands. The border contests with the English on the east continued as long as the Dutch held possession of the country. The English claimed New Netherlands as part of Virginia, a claim founded upon the prior discovery of Cabot. In 1622 the English minister at the Hague demanded that the enterprise of planting a Dutch colony upon the Hudson should be abandoned. In 1627 Gov. Bradford of Plymouth gave notice to Peter Minuits that the patent of New England extended to lat. 40°, and that the Dutch had no right "to plant and trade" north of that line. On March 12, 1664, Charles II. granted a charter of all the lands lying between the Hudson and Delaware to his brother the duke of York. This included New Netherlands and a portion of the territory which had been previously granted to Connecticut, Massachusetts, and New Hampshire. In August of the same year, without any declaration of war, Col. Nicolls at the head of an English force appeared before New Amsterdam, and demanded its surrender. Being in no condition to resist, Gov. Stuyvesant complied with the demand, and the whole country quietly passed into the hands of the English. New Amsterdam was named New York, and Fort Orange Albany, and the name of New York was also applied to the whole province. New York was subsequently recaptured by the Dutch, but was soon after restored to the English. The Dutch engaged in the slave trade as early as 1627, and at the surrender in 1664 the colony contained more slaves in proportion to its inhabitants than Virginia. Owing to the preponderance of the aristocratic element, but little attention was paid to general education, or to any measures calculated to elevate the people. Political freedom and religious toleration made advances in spite of the rulers, and along the Hudson grew up a sturdy and industrious yeomanry. The English rule, under the duke of York, gave little encouragement to freedom. Large estates and special privileges were granted to favorites, heavy taxes were imposed, and onerous restrictions were placed upon manufactures and trade. When the duke of York ascended the throne as James II., the government became an appendage of the crown, but was otherwise unchanged. The accession of William and Mary to the throne of England in 1689 was hailed by the people of this colony as a harbinger of better times; but the Protestant William was found no more willing to concede popular rights and forego ancient privileges than the Catholic James. The royal governors had frequent collisions with the representatives of the people concerning the right of taxation and other matters of similar character. Democratic principles continued to spread, and the controversies that took place from time to time gradually prepared the people for the great final struggle that severed the colonies from the mother country. In 1689 the people revolted from the tyranny of Nicholson, the governor under James II., and, under the lead of Jacob Leisler, a merchant of New York, seized the government and administered it in the name of William and Mary. Although never officially recognized as governor, Leisler continued at the head of affairs more than two years, when he was superseded by Gov. Sloughter, bearing a commission direct from the English sovereigns. Offering some slight resistance to Sloughter upon his arrival, Leisler and his son-in-law Milborne were arrested, tried for treason, and executed. From the earliest period of the settlement the French were engaged in almost incessant warfare with the Five Nations. Sometimes, by the distribution of valuable presents and by the exertions of the missionaries, they would succeed in effecting a treaty with their enemies, but the natives would generally recommence hostilities on the slightest provocation. On some occasions the Indians were induced to remain neutral in the wars between the French and English, but usually they completely protected the frontier settlements from French incursions on the north and west. In 1684 Gov. Dongan concluded an offensive and defensive treaty with the Indians, and from that time the English became the recipients of that friendship which had been before bestowed upon the Dutch. In 1687 the Seneca country in western New York was invaded by a French army under De Nonville, governor of Canada; and in 1689 the Five Nations retaliated by invading Canada. In this last expedition more than 1,000 French settlers were slain, and the whole French province was threatened with destruction. On the night of Feb. 9, 1689, a party of French and Canadian Indians fell upon Schenectady, destroyed the place, and massacred nearly all the inhabitants. In 1693 a French expedition against the Mohawks succeeded in taking one of the Indian forts and in capturing 300 prisoners, but the greater part of the invaders perished with cold before reaching Canada. The peace of Ryswick in 1697 concluded the hostilities between England and France, and Count Frontenac, then governor of Canada, turned his whole force against the Five Nations. His plans however were frustrated by the earl of Bellamont, then royal governor of New York, who declared he would make common cause with the Indians in case any attack was made upon them. During the continuance of Queen Anne's war, from 1702 to 1713, hostilities in New York were confined to skirmishes upon the frontiers, and in the preparation for expeditions which failed from want of promised aid from England, but which cost immense sums of money and involved the colony largely in debt. In 1731 the French built the important fortress of Fort Frederic at Crown Point on Lake Champlain, completely commanding the natural pass between the Hudson and St. Lawrence. During King George's war, which commenced in 1745 and continued 3 years, frequent skirmishes occurred upon the disputed territory between the advanced English posts on the Hudson and the French fortress at Crown Point; but no general engagement took place within the limits of the state. The great final conflict between England and France to determine the sovereignty of North America commenced in 1754. In view of the French claims and encroachments, a congress of delegates from the several colonies convened at Albany in June of that year to decide upon measures of general defence. A plan of union, drawn up by Dr. Franklin, was adopted by the delegates; but it was rejected by the colonial legislatures to which it was submitted, as conferring too much power upon the crown, and by the crown as conceding too many popular rights. Owing to these mutual jealousies no plan of union was adopted, and in consequence, during the first years of the war, a series of disasters threatened the entire subjugation of the British colonies of North America. The war involved nearly all the colonies, and its records belong to the general history of the country. Along the frontiers of New York the French had erected fortresses on Lake Champlain, at Frontenac (now Kingston) on the St. Lawrence, and at Niagara. The English advanced posts were at Fort Edward on the Hudson, and at Oswego on Lake Ontario. In 1755 an expedition under Gov. Shirley of Massachusetts, directed against Niagara, proceeded as far west as Oswego, but returned without accomplishing any thing. In the same year a large force under Sir William Johnson marched against Crown Point. Arriving at the head of Lake George, he was attacked by the French under Dieskau, but the victory was finally obtained by the English, and the French force was nearly annihilated. In 1756 Oswego was taken by the French and destroyed. In 1757 Fort William Henry, at the head of Lake George, was taken by the French, and the garrison, after capitulation, were nearly all massacred by the Indians. In 1758 Abercrombie at the head of 16,000 men, the largest and best appointed army ever raised in America, was defeated in an attack upon Ticonderoga; and during the same year Col. Bradstreet marched through the wilderness and took Fort Frontenac. In 1759 Niagara was taken by Gen. Prideaux and Sir William Johnson, and Ticonderoga and Crown Point were abandoned upon the approach of an English army under Gen. Amherst, leaving no French force within the limits of the colony. During the last years of the war, under the administration of Pitt, the English pursued a liberal policy toward the colonies; but upon the conquest of Canada in 1760, they recommenced aggressions, which provoked opposition. Notwithstanding the presence of a larger body of royalists than in any other colony, New York fully shared in the indignation caused by the oppressive acts of parliament, and entered zealously into the measures proposed for common defence. In Oct. 1775, Tryon, the last royal governor, abandoned the province and took refuge on board a British man-of-war. In May of that year Ticonderoga and Crown Point had been surprised and taken by a party of "Green Mountain Boys" under Ethan Allen. In July an army under Generals Montgomery and Schuyler passed down Lake Champlain to invade Canada, and in the succeeding spring the same army, defeated and broken, retreated over the same route. In Feb. 1776, an American force took possession of New York; in August the disastrous battle of Long island was fought, and immediately afterward New York and its environs fell into the hands of the British. In the summer of 1777 Burgoyne invaded the province from Canada, and a British force from New York passed up the Hudson to coöperate with him. Several fortresses upon Lake Champlain and the Hudson were taken by the enemy, but, after a series of reverses, Burgoyne's army on Oct. 17 was obliged to surrender at Saratoga. In the winter of 1777-'8 West Point was fortified, and soon became the most important fortress in America. Under the lead of Sir John Johnson, the Six Nations espoused the English cause, and continually harassed the defenceless frontier settlements. In 1779 Gen. Sullivan marched through the Indian country in western New York, and destroyed their villages. During the next two years the Indians made frequent attacks upon the Schoharie and Mohawk settlements, until the whole of that flourishing region was laid waste. On Nov. 25, 1788, New York was evacuated by the British, which was the last scene of the drama of the revolution. The original grant of New York included all lands between the Delaware and Hudson rivers, conflicting with patents previously granted to Connecticut, Massachusetts, and New Hampshire. In 1664, soon after the date of the first patent, the proprietor sold the territory included in the present state of New Jersey. The Connecticut boundary was established in 1781. The claims of Massachusetts were finally settled in 1786, by a compromise which gave New York the sovereignty of the whole territory, but yielded to Massachusetts the right of soil to that portion of the state which lies west of a meridian line passing through the 82d milestone of the Pennsylvania boundary. This line, known as the "preëmption line," commences at the S. E. corner of Steuben co., extends along the W. shore of Seneca lake, and terminates in Sodus bay on Lake Ontario. The conflicting claims of New York and New Hampshire led to violent collisions and almost to civil war. The threatened hostilities however were averted in 1790 by the erection of the disputed territory into the state of Vermont, and the payment to New York of $30,000. The first constitution of the state was adopted in March, 1777. This constitution was revised in 1801, 1821, and 1846, each change making the government more truly democratic in its character. Slavery, which had been much restricted since the formation of the first constitution, was finally abolished in 1817. At the close of the revolution a treaty was concluded with the Six Nations, by which a large amount of the Indian lands was ceded to the state. Settlements rapidly spread in the fertile regions of central New York, and by subsequent treaties all the lands of the Indians except a few "reservations" passed into the hands of the whites. Upon these reservations the last remnants of the once powerful Six Nations yet linger. In 1787 Massachusetts sold to Oliver Phelps and Nathaniel Gorham the whole tract lying W. of the preëmption line, containing 6,000,000 acres, for $1,000,000. About two thirds of this tract reverted to Massachusetts, and was subsequently sold to Robert Morris. Morris sold about seven eighths of his purchase to a company of capitalists of Amsterdam, Holland, and the tract was afterward known as the "Holland Purchase." The Holland land company pursued an exceedingly liberal policy in regard to their lands. They thoroughly surveyed the whole region, built roads and mills, and by every means encouraged settlement. In consequence of this policy and the richness of the soil, western New York was filled up with unexampled rapidity. The central portion of the state and a part of Franklin and Clinton counties were set apart for military bounty lands, which were mostly drawn by soldiers of the revolution. Several large grants of land were made in the northern part of the state for the purpose of facilitating settlement, but most of the companies engaged in these enterprises failed, and the land in small parcels gradually came into the possession of actual settlers. The largest of these grants, known as "Macomb's Purchase," embraced 3,693,755 acres, in Oswego, Jefferson, Lewis, St. Lawrence, Franklin, and Herkimer counties. During the war of 1812 the frontier settlements were constantly exposed to attacks of the British, and several serious engagements took place along the borders. Sackett's Harbor, the principal American naval station on Lake Ontario, was once attacked unsuccessfully, and from it several expeditions were sent out against various points in Canada. Previous to the revolution no provisions were made for a general system of education. King's (now Columbia) college in New York city, founded in 1754, was the only incorporated educational institution in the colony. But after independence was won education received early attention. In 1787 Gov. Clinton in his message to the legislature recommended immediate action upon this subject; and during the session the "Board of Regents of the University," a body to take charge of all educational matters, was created. In 1795 a law was passed for the purpose of encouraging and maintaining common schools, and the sum of $50,000 was annually appropriated for 5 years for their benefit. The success of the experiment was so complete, that the appropriation was continued. In 1812 a complete common school system was reported by commissioners appointed for that purpose, and adopted by the legislature. Since that time many changes have been made in the system, most of which have had the tendency to extend the influence of the schools and to place them on a firmer foundation. In 1796 the "Western Navigation Company" was incorporated. This company built locks around the rapids upon the Mohawk, and dug a canal across the portage at Rome, so that laden boats could pass from the ocean to Oneida lake, and thence by the outlet of that sheet of water to Lake Ontario. Various plans were brought before the public from time to time for improving this channel of navigation and for building locks around Niagara falls so as to unite the waters of Ontario and Erie. In 1800 Gouverneur Morris conceived the bold plan of bringing the waters of Lake Erie to the Hudson by means of a canal directly through the centre of the state. In 1808 James Geddes made a partial survey of the proposed route, and gave a report highly favorable to the enterprise. De Witt Clinton soon afterward investigated the matter, and from that time forward gave to the project the whole weight of his influence. The war of 1812 caused a suspension of the work, but upon the return of peace in 1815 the discussion was vigorously resumed, and in 1816 a law was passed authorizing the construction of the canal. The work was actually commenced in 1817, and the canal was finished in 1825. It speedily became the great channel of trade and emigration, and poured into New York city the rich streams of traffic which have made it the commercial metropolis of the western continent. The state has been covered with a network of railways, rendering communication between distant points easy and rapid. The early attention paid to internal improvements, and the consequent development of internal resources, gave to New York the impetus which has placed it first in commercial importance, and given to it the name of "The Empire State."

NEW YORK (called by the Dutch New Amsterdam), the chief city of New York state, the commercial emporium of the United States, and the most populous city in the western hemisphere, situated at the mouth of the Hudson river, 18 m. from the Atlantic ocean; lat. (of city hall) 40° 42′ 43″ N., long. 74° 0′ 3″ W. The city and county are identical in limits, and extend over Manhattan island, Randall's, Ward's, and Blackwell's islands in the East river, and Governor's, Bedloe's, and Ellis's islands in the bay; the last 3 are occupied by the U. S. government. Manhattan island, on which stands the city proper, is 13½ m. long, and on an average 1⅔ m. wide, having an area of nearly 22 sq. m. or 14,000 acres. The East river islands make about 300 acres, and those in the bay 100 more. Manhattan or New York island is bounded N. by Spuyten Duyvil creek and Harlem river, which separate it from the mainland of the state, E. by Long Island sound and the East river, S. by the East river and the bay, and W. by the Hudson river. The island was originally very rough, a rocky ridge running from the S. point northward, and branching into several spurs, which united after 4 or 5 m., culminating in Washington heights, 238 feet above tide water, and a bold promontory of 130 feet at the extreme N. point. These ridges are composed of primitive gneiss, mixed with granite, hornblende, slate, and mica. Nearly all the rock on the island shows evidence of violent upheaval, the dip of strata varying from 10° to 60°, and the ranges being frequently broken laterally. Most of the stone is unfit for building purposes, being coarse and brittle. The southern part of the island, and the shores in some places, are alluvial sand beds. The few swampy places are disappearing before the constant grading and filling for new or improvement of old streets. A deep valley which crossed the island at Canal street has shared this fate. Manhattan island is by survey divided into 141,486 lots, of which about 55,000 are built upon. The city proper extends from the southern point of the island, and is compactly built for 5 m., and irregularly along the E. side to Harlem, 4 m. further. On the W. side it is almost solidly built to about 50th street, and irregularly to Bloomingdale, at 78th street. Thence to Manhattanville, at 125th street, there are old country seats and gardens. North of 130th street the island is compressed into a narrow ridge, now occupied by handsome rural residences, and is to be laid out in serpentine streets according to its surface.—Three wagon and two railroad bridges over Harlem river connect New York with the mainland on the north; 15 ferries connect with Long island eastward, 7 with New Jersey on the W., and 2 with Staten island, 7 m. S. W., beside many steamboats not regular ferries, running to 40 or 50 small places in the vicinity. The amount of travel by ferries is enormous. On 4 routes to Brooklyn—Fulton, Wall, South, and Hamilton avenue—there are 20 boats, making about 550 trips per day, at intervals from 6 to 20 minutes, carrying a daily average of 70,000 foot passengers (35,000 each way) and 2,750 vehicles; all the other eastern ferries carry about two thirds as many, making a transit to and from Long island of about 120,000 persons and 5,000 vehicles daily. The first steam ferry boat on this river was the Nassau, started in the summer of 1812; the largest boat now is the Atlantic, of 700 tons and 160 horse power, elegantly fitted, and, like nearly all the others, lighted by gas and warmed by steam. On the W. side of the city, 3 lines run to Hoboken, one to Jersey City, and 2 or 3 to other points. The Hoboken lines have 7 boats, starting every 3 to 30 minutes, making about 300 trips per day, and carrying about 9,000 foot passengers and 700 vehicles. During the summer months Hoboken is a favorite rural resort, much frequented by Germans; and then the daily travel often reaches 20,000 each way. The first steamboat on this route started in 1822. On the Jersey City ferry there are 8 large boats, running at intervals of 10 to 30 minutes, and carrying about 30,000 passengers, or 15,000 each way, daily, of whom about one half are to and from the western and southern railroads. The railroads diverging from New York are: to the north, the Hudson river, the Harlem, and the northern New Jersey; to the east, the New Haven and the Long island; to the south, the New Jersey, the Camden and Amboy, and the Staten island; to the west, the New Jersey central, the Morris and Essex, and the New York and Erie. These roads run about 100 passenger and 25 freight trains per day to points from 10 to 460 m. distant, and bring 8,000 to 10,000 passengers daily. The principal steamboat routes are: northward up the Hudson river, 150 m., with 3 through and 5 or 6 way boats each way daily; eastward through Long Island sound to Bridgeport, New Haven, Hartford, Groton, Newport, and Fall river, 5 regular lines of large boats; and southward, a line to Cape May during the summer season. There are many more irregular lines and single boats adding to the throng, so that by water and land about 20,000 persons are daily brought to the city during the height of the season for pleasure travel, exclusive of those arriving by regular ferries. There are 7 steamship companies, with large capital, running steamers to Richmond, Charleston, Savannah, New Orleans, Havana, Aspinwall, and on the Pacific to San Francisco. New York is well provided with docks for the repair of shipping, there being 5 or 6 on the East river side ready for use, and capable of raising the largest sailing vessels. There are 60 piers on the Hudson, and 70 on the East river. Telegraph lines radiate from New York to every part of the Union and the British provinces; and by an arrangement made by the leading daily newspapers of the city, very full intelligence of all important transactions throughout the world, as well as news by steamers which touch at distant ports, is forwarded instantly to New York. There is a local line to Brooklyn, recently established. Internal travel is by means of horse rail cars and omnibuses. There are 6 city railroads running through the 1st and 2d, 3d, 4th, 6th, 8th, and 9th avenues, and the Bowery, Chatham, Varick, Hudson, Canal, and Greenwich streets, and West Broadway. They all terminate near the city hall, except the 2d avenue railroad, which runs to the Williamsburg ferry at Peck slip. The 2d avenue and 3d avenue lines have each 70 cars in use, the 4th avenue 42, the 6th avenue 69, the 8th avenue 61, and the 9th avenue about 40. They make trips every 2 minutes during the morning and afternoon travel; the fare is 5 cts., and on the 2d and 3d avenues 1 ct. additional from 61st street to Harlem (128th street). In 1859 the 2d, 3d, 4th, 6th, and 8th avenue roads carried 32,723,35[illegible] passengers, at an expense of $1,087,567; receipts, $1,733,556. There are 24 lines of omnibuses, comprising about 570 stages, of which more than half run through Broadway, and nearly all through some portion of that street. There are also 845 hackney coaches.—The harbor of New York is one of the finest in the world. The bar is at Sandy Hook, 18 m. from the city, and has 2 ship channels, from 21 to 23 feet at low, and 27 to 39 at high tide, admitting vessels of the heaviest draft, the Great Eastern having passed 4 times without danger or difficulty. The lower bay is a safe anchorage, of triangular form, from 9 to 12 m. on each side, the N. E. angle opening into the upper or New York bay, through the Narrows, a deep channel between Long island and Staten island, about 1½ m. long by 1 m. wide. The upper bay is an irregular oval, about 3 by 5 m., opening northward into the Hudson river, eastward through the East river into Long Island sound, and westward into Newark bay. The rivers immediately around the city are deep, so that the heaviest ships can approach any of the wharfs, while the bottom affords good anchorage, and the tidal currents keep the channels free from ice. Tides rise from 4 to 6 feet at the piers. For defence there are, at the Narrows, Forts Hamilton, Lafayette, Richmond, and Tompkins, and batteries Hudson and Morton, with 457 heavy guns requiring 2,170 men; in the upper bay, on Governor's island, Fort Columbus, Castle William, and the South Battery, with 200 guns and 800 men; on Bedloe's island, Fort Wood, and on Ellis island, Fort Gibson, with 100 guns and 480 men; at Throg's Neck, in the sound, Fort Schuyler, with 318 guns and 1,250 men; while at Sandy Hook new works for 300 guns and 1,250 men are in progress. There is also under construction at Hoboken an immense floating battery (see BATTERY); and there are usually several ships of war at the Brooklyn navy yard.—The growth of New York has been extremely rapid. The population in 1656 was 1,000; in 1756, 10,381; in 1800, 60,489; in 1820, 123,706; in 1830, 202,589; in 1840, 312,852. The following table gives the numbers furnished by the last 3 censuses:

Wards.	1850.	1855.	1860.
1	19,754	18,486	18,120
2	6,655	3,249	2,507
3	10,355	7,909	3,757
4	23,250	22,895	21,994
5	22,686	21,617	22,841
6	24,698	25,562	26,698
7	32,690	34,422	40,006
8	34,612	34,052	37,712
9	40,657	38,982	44,886
10	23,316	26,378	29,051
11	43,758	52,979	59,663
12	10,451	17,656	30,647
13	28,246	26,597	32,917
14	25,196	24,754	28,087
15	22,564	24,046	27,588
16	52,882	39,823	45,182
17	43,766	59,548	72,955
18	31,546	39,415	57,464
19	18,465	17,866	32,841
20	.....	47,055	67,554
21	.....	27,914	49,063
22	.....	22,605	61,754
Total	515,547	629,810	814,237

The state census of 1855 gave the following distribution of the population at that time:

Wards.	Population.	White males.	White females.	Single.	Married.	No. of families.	Native voters.	Naturalized voters.	No. of aliens.	Born in				
										United States.	Ireland.	Germany.	England.	France.
1	18,486	7,019	6,420	7,882	5,042	2,646	570	1,425	6,062	4,267	6,207	1,979	885	187
2	3,249	1,929	1,224	2,365	704	434	500	290	1,384	1,273	1,164	344	147	58
3	7,909	4,786	2,970	5,766	1,838	1,012	2,069	694	2,765	4,118	2,283	714	281	140
4	22,895	11,898	10,896	14,375	7,519	4,732	922	2,459	10,785	6,860	10,446	2,688	1,009	276
5	21,617	9,679	9,869	12,657	7,540	4,233	1,962	1,471	7,462	11,322	4,866	2,633	932	729
6	25,562	12,862	12,055	15,709	8,586	5,241	686	2,263	13,010	7,734	10,845	3,590	915	363
7	34,422	16,437	17,747	18,859	14,386	6,811	2,767	2,649	12,344	16,923	11,777	2,989	1,455	83
8	34,052	14,821	16,730	20,685	11,240	7,066	2,992	1,910	10,783	19,175	7,210	3,737	1,568	757
9	39,982	18,356	21,202	24,081	13,887	7,745	5,133	1,976	9,346	26,317	7,909	2,192	1,598	185
10	26,378	12,824	13,280	16,112	9,030	5,825	2,160	1,476	10,218	12,945	3,442	7,536	989	189
11	52,979	25,921	26,748	32,659	18,585	11,893	2,763	3,612	21,237	23,481	9,291	17,763	1,227	363
12	17,656	8,737	8,725	12,436	4,792	2,835	957	787	7,864	8,859	5,831	2,130	629	123
13	29,597	12,899	13,162	16,144	9,761	6,040	2,120	1,852	8,784	14,040	4,965	5,926	768	205
14	24,754	11,445	12,403	15,837	7,661	5,143	1,246	1,954	10,275	10,551	8,961	3,236	823	394
15	24,046	9,914	13,332	15,911	6,590	3,690	3,091	1,292	7,406	14,098	6,285	1,068	1,022	477
16	39,823	18,054	21,383	24,321	13,958	8,125	3,350	2,173	18,495	21,536	11,572	2,305	1,957	212
17	59,548	28,140	31,051	34,648	22,238	12,708	3,229	3,689	26,780	24,610	14,815	16,223	1,466	676
18	39,509	17,419	21,850	28,831	13,661	7,551	2,774	2,345	15,677	18,537	14,666	3,525	1,259	288
19	17,866	8,594	8,615	11,246	5,475	2,796	1,022	1,460	6,507	8,242	6,320	1,789	610	51
20	47,055	23,829	24,172	27,876	17,298	10,178	2,437	3,045	14,441	22,540	12,853	7,413	1,885	294
21	27,914	12,770	15,021	17,503	9,170	5,451	2,262	1,993	8,136	16,398	8,287	1,480	946	127
22	22,605	11,037	11,319	12,531	8,770	4,903	1,161	1,889	8,027	10,400	5,740	4,726	892	193
Totals	629,904	297,870	320,194	383,434	217,781	126,558	46,173	42,704	232,678	308,721	175,735	95,986	22,713	6,321

There were 11,840 colored persons, 22,845 widows, 5,894 widowers, 14,784 land owners, and 25,858 who could neither read nor write (of whom 1,963 only were born in the United States, and 21,378 in Ireland). As to nativity, 232,155 were born in the city, 30,000 in other parts of the state, 41,565 in other states, 2,040 in Canada, 916 in other British North American provinces, 1,121 in the West Indies, 170 in South America, 3,487 in Scotland, 935 in Wales, 174 in Belgium, 756 in Holland, 1,586 in Prussia, 331 in Austria, 978 in Switzerland, 968 in Italy, 343 in Spain, 163 in Portugal, 1,200 in Poland, 116 in Prussia, 227 in Norway, 554 in Sweden, and 327 in Denmark. There were 411 deaf and dumb, 316 blind, 655 insane, and 52 idiotic, including those in the several asylums. The return of dwellings gave 1,617 of stone, 29,997 of brick, 10,595 framed, 338 mixed—total 42,668, valued at $273,481,811.—Most of the buildings erected within a few years, along Broadway and in the lower portion of the city, extend from street to street, or to the centre of the block, covering the entire ground space, with a height above the ground of 5, 6, and 7 stories, and 2 stories below the surface, with well lighted vaults reaching nearly to the middle of the street. Brick is still much used for the cheaper class of dwellings and workshops, but seldom for more elaborate structures. Broadway, the great central thoroughfare, is fast becoming a street of palaces occupied as stores and shops. In the summer of 1860 there were within half a mile of the park new buildings in progress to the value of more than $1,000,000. Broadway is 6 m. long and 80 feet wide, and upon it are nearly all the principal hotels, places of amusement, and great retail shops. It is the favorite promenade of beauty, fashion, and curiosity. Wall street, less than half a mile long, is the money centre of America. It contains the custom house, exchange, and many fine bank buildings. Fifth avenue is noted for the magnificence of its private residences, to which it is almost entirely devoted. It has also some handsome churches. Each of the avenues from 1st to 12th is 100 feet wide, and is, or will be, nearly 8 m. long, except the 6th and 7th, which are cut off by the central park. The cross streets, at right angles with the avenues, vary from 1¼ to 2¼ m. in length, and are 60 feet wide, except about every 10th one, which is 100 feet wide. The avenues are about 1,000 feet apart, the cross streets 260. The lower part of the city is less regular, and a few streets are crooked and narrow; but these are constantly being widened and extended at immense cost. The Bowery, a wide street, is the main thoroughfare for the east side, as Hudson street is for the west; and these great avenues, with their hundred lateral streets, pour into lower Broadway in the morning and return at night a crowd of people and vehicles unequalled by any other city on the continent. There are altogether 645 streets and places laid out, and most of them opened and paved.—Among the public buildings is the city hall, in the park, 216 by 105 feet, and 3 stories high; it is a handsome edifice of the Italian style. The front is of white marble, and the rear of brown stone. It was erected from 1803 to 1812, at a cost of $216,000, and is occupied by the mayor, common council, and other public officers. The "governor's room" in the 2d story contains Washington's writing desk and chair, and a gallery of paintings embracing portraits of the mayors of the city, state governors, and leading federal officers and revolutionary chieftains, mostly by eminent artists. It has also a very fine portrait of Columbus. North-east of the city hall is the new court house, of brown stone, 3 stories high, and 105 by 72 feet. Near this is a similar edifice 70 by 55 feet, and also occupied by law courts, offices, &c. The rotunda, erected in 1818 by Vanderlyn for a panorama, was occupied after the great fire of 1835 by the post office, and is now used by the Croton water commissioners and the almshouse department. East of the city hall is the hall of records, a massive stone edifice, once used as a prison, and now occupied by the finance department and the register of deeds. The custom house, situated in Wall street, is of white marble, fire-proof, 200 feet by 90, and 80 feet high, with Doric porticos of 8 columns on Wall and Pine streets, and a granite roof. The rotunda is 60 feet in diameter, and the dome is supported by 16 Corinthian columns. Its cost was $1,175,000. The merchants' exchange, also in Wall street, is 200 by about 160 feet, and 77 feet high, with a dome 124 feet high. It is of Quincy granite, with a portico having 12 front, 4 middle, and 2 rear columns, each of granite, 38 feet high and 4½ feet in diameter. The rotunda is 80 feet high, and the dome is supported on 8 pilasters of fine Italian variegated marble. The cost of the building and ground was $1,800,000. The U. S. assay office in Wall street is a substitute for a mint. New York receives more than $\frac{9}{10}$ of the domestic product of gold. The assay office in 5½ years received in bullion $105,091,124.61, made into bars $89,400,266.70, and sent $14,695,582.80 to Philadelphia to be coined.—There are many fine churches, especially in the central portion of the city, and an immense Roman Catholic cathedral has been commenced in 5th avenue by the Most Rev. Archbishop Hughes. The finest church edifice is Trinity, in Broadway opposite Wall street. It is in the Gothic style, built of brown stone, 192 feet long, 80 feet broad, and 60 feet high, with a spire 284 feet high. It has rich stained windows, and a good chime of bells. It is a free church, open every day. St. Paul's, also in Broadway, is 151 by 73 feet, and has a spire 208 feet high; the front and rear are of brown stone, and the sides of gray stone colored to match; the pediment contains a white marble statue of St. Paul, and below is the monument of Gen. Richard Montgomery. St. John's, in Varick street, is of brown stone, and has a graceful spire; it is 132 by 80 feet. St. George's, in Stuyvesant square, is 170 by 94 feet, with double spires; it is in the Byzantine style, and is one of the most capacious churches in the city. St. Thomas's, in Broadway and Houston street, is a plain rough stone building 118 by 62 feet. Grace church, in Broadway, near Tenth street, is one of the showiest buildings in the city; it is of white freestone, and the interior is exceedingly elaborate with carved work and stained glass. Trinity chapel, in 25th street, 180 by 54 feet, has an interior of Caen stone, with a blue ceiling, rich stained windows, tiled floor, and movable seats. All the above-named churches are Episcopal. The first Baptist church, in Broome street, is of blue stone with battlements of brown stone in the Gothic style, 99 by 75 feet. The Dutch Reformed church in 4th street is a massive plain building, 110 by 75 feet, with a conical spire. The Washington square Dutch Reformed church is a Gothic building of rough granite, with square towers. The Roman Catholic church of the Holy Redeemer, in 3d street, is very large and costly, and richly decorated inside with marble columns and a magnificent altar. The first Presbyterian church, in 5th avenue, is 119 by 80 feet, and has a spire 160 feet high. The Congregational church in 34th street and 6th avenue is a fine new Gothic edifice, with elaborate ornamentation. The Madison square Presbyterian church is another elegant building. St. Paul's M. E. church, in 4th avenue, is Romanesque, of white freestone or marble, 146 by 77 feet; the spire is 210 feet high. The Unitarian church of the Messiah, in Broadway, is a massive rough granite building, 100 by 74 feet, with a square tower. The Presbyterian church in 10th street and University place, of reddish stone, is a Gothic building, 116 by 65 feet, with a spire of 184 feet. The 4th Universalist church, in Broadway near Spring street, is of brick, 110 by 77 feet, and richly ornamented inside. The free Episcopal church of the Holy Communion, in 6th avenue and 20th street, is of sandstone, cruciform in plan, 104 by 66 feet, with a turret 70 feet high. The 5th avenue Reformed Dutch church is an elegant white marble building, with a tall spire of the same material. Calvary Episcopal church in 4th avenue and 21st street, is a large and handsome edifice of brown stone, with double towers. On the corner below is the Unitarian church of All Souls, of red brick and cream-colored stone in alternate layers, with variegated marble door columns. The Congregational church of the Puritans, in Union square, is of Romanesque style, built of white stone, with one square and one Chinese peaked tower. St. Peter's Catholic church, in Barclay street, is a massive granite building, with an Ionic portico and 6 granite columns, with a statue of St. Peter. The oldest church edifice is the North Dutch in William street, between Fulton and Ann, erected in 1769. The latest official church returns are given in the following table:

Denomination.	No. of churches.	No. of seats.	No. of communicants.	No. usually attending.	Value of church property.
Baptist	26	25,900	7,116	12,140	$631,800
Freewill Baptist	1	500	110	200	10,000
Seventh Day Baptist	1	600	50	100	15,000
Christian Connection	1	300	80	250	1,800
Congregational	9	7,450	905	4,175	292,500
Disciples of Christ	1	300	100	200	15,500
Episcopal	43	37,819	9,006	21,850	3,364,500
Evang. Lutheran	3	2,250	1,620	1,450	86,000
Friends'	4	5,100	1,000	1,700	175,000
Jews'	10	8,575	1,953	3,825	177,100
Methodist Episcopal	33	27,030	8,878	15,090	582,800
African Methodist	6	4,530	1,668	3,005	120,000
Calvinistic Meth'ist	1	300	100	250	9,000
German Methodist	4	2,600	2,025	1,800	57,000
Primitive Meth'dist	1	900	150	500	10,000
Wesleyan Meth'dist	3	2,000	855	2,000	35,000
Moravian	1	700	190	200	25,000
Presbyterian, O. & N. S.	33	30,700	10,643	17,675	1,645,500
Assoc. Presbyterian	6	6,300	1,708	3,700	378,000
Assoc. Ref'd Presb.	4	3,700	1,055	1,950	98,000
Ref'd Presbyterian	4	2,150	841	1,400	71,500
Reformed Dutch	22	21,650	5,117	13,100	919,000
Roman Catholic	24	33,576	100,500	78,488	1,610,000
Second Advent	2	650	90	240	17,000
Unitarian	2	2,500	310	2,100	225,000
Universalist	4	4,200	889	3,000	319,000
Bethels	3	1,050	455	650	11,200
Total	252	234,730	185,406	222,550	$10,900,400

Beside which, the churches own other real estate worth $1,192,350, and pay for clergymen's salaries $438,063. Since this return there has been an increase of 46 church organizations, and a number of expensive edifices, raising the valuation to more than $15,000,000. The actual number of places of worship in the summer of 1860 was 274, including about 25 mission stations. The entire number of seats would accommodate nearly one third of the population of the city.—New York possesses an excellent system of free schools, and every facility is afforded by large and commodious school houses, free books and materials, and competent teachers, for the education of all children within its boundaries. These schools are managed by a board of education of 44 members, and a local board in each ward of 2 commissioners (who are members of the general board), 2 inspectors, and 8 trustees, all serving without pay. There are 52 ward or grammar schools, 35 primary schools, 8 schools for colored children, 12 corporate schools, 4 normal schools, and the free academy—in all, 112 schools. The free academy, a large and well endowed establishment, is intended to furnish the means of a full collegiate education to deserving pupils from ward schools. It has 29 teachers, 9 of whom are members of the faculty. In 1859, 830 pupils were under tuition, 325 were admitted, and 30 graduated. The library has 7,170 volumes, beside text books. In its 10 years' existence the academy has taught 2,762 pupils. The 52 ward schools are subdivided into 44 grammar schools for boys, 45 for girls, 8 for both sexes, and 46 primary departments. In 1859, 138,688 pupils were registered, with an average attendance of 51,489. For a portion of the winter there were 24 male and 20 female evening schools in operation, with 15,351 pupils; and all the year 12 specially incorporated schools with 7,309 scholars. The aggregate school registry shows 168,828 children. The expense of this instruction was $1,246,000; of which teachers' salaries took $617,129, new houses and repairs $363,946, fuel $29,530, books and stationery $72,486, free academy $50,112, evening schools $69,089, and normal schools $9,156. Of this money, $207,333 came from the state at large, and $1,038,667 from city taxation. To the school tax of the state at large the city contributed $191,684 more than she received from it. More than ¼ of the attendants in evening schools were persons too old to go to day schools; 2,100 were over 21 years of age. Teachers' salaries range from $1,500 for male principals to $250 for good female teachers. More than ¾ of the instructors are women. Most of the school houses are 40 or 50 feet front, 100 feet deep, and 3 or 4 stories high; and some are of elegant appearance. There are, beside the public schools supported by taxation, about 33 Roman Catholic free schools, 8 of them taught by brothers of Christian schools, 12 by sisters of charity, 1 by ladies of the Sacred Heart, 1 by sisters of mercy, 1 by sisters of Notre Dame, and 1 by sisters of St. Dominic. They have from 12,000 to 15,000 pupils. The same denomination have, of higher schools, St. Xavier's college, under the Jesuits; St. Vincent's academy, and the academy of the Holy Infancy, brothers of Christian schools; and convents and academies of the Sacred Heart. Columbia college, the oldest college in the state, situated in 4th avenue and 50th street, had at the last report 173 students and 12 professors; the number of students graduated during the year was 32. Its property amounts to nearly $2,000,000, chiefly in real estate. (See COLUMBIA COLLEGE.) Connected with it is the college of physicians and surgeons, in 4th avenue and 23d street, founded in 1791 and chartered in 1807. The building is of brick, and rather plain in appearance. It has a good library and a valuable physiological museum. There are 11 professors and 193 students, and the number of graduates at the last commencement was 48. It has no debts, and is supported by tuition fees and voluntary donations. It became attached to Columbia college in Oct. 1860. The university of the city of New York, a Gothic white freestone structure in Washington square, 180 by 100 feet, 4 stories high, with octangular 5 story turrets at the angles, was founded in 1831, and in 1859 had 350 pupils and 27 professors and teachers; the number of graduates was 28. It has a special law department, and a separate medical college. Its property is valued at $212,000. The medical department in 1859 had 13 professors, 411 students, and 124 graduates. The New York medical college, in 13th street near Broadway, founded in 1851, has 13 professors and 92 students, and had 32 graduates in 1859. The metropolitan medical college is a new institution not fully established; it has 7 professors.—There are two extensive theological seminaries in the city. The first, known as the general theological seminary of the Protestant Episcopal church in the United States, was established in 1819 at New Haven, Conn. It was soon after removed to New York, and chartered by the legislature in 1822. All the bishops of the church are *ex officio* trustees, in common with clerical and lay trustees from every state in which the church is organized. Prof. Clement C. Moore gave a block of ground in 9th avenue and 20th street to "promote the establishment and endowment, and aid in the support of a seminary for the education of young men designed for holy orders in our church," and upon this ground 2 substantial stone buildings, 50 by 110 feet, were erected soon afterward. This real estate is now worth more than $500,000. In 1860 there were 54 students, 26 having been admitted during the year. The studies are entirely of a theological character, designed to qualify graduates for holy orders. The library numbers nearly 14,000 vols. The union theological seminary (Presbyterian) was founded in 1836, chartered in 1839, and is open for students from every denomination of Christians; but the applicant must be a member in good standing of an evangelical church, and a graduate from college, or able to pass an examination in the usual college branches. The course of study occupies 3 years, and is entirely of a theological nature. The edifice, of plain brick, is in University place, near Washington square: it contains a chapel, 4 lecture rooms, a library, and private rooms for about 80 students. The students have formed a boarding association, reducing the cost of living to $2.25 per week. A general charge of $10 a year is all that is demanded by the seminary. There is a faculty of 5 professors; a senior class of 33, middle 49, junior 58—141 students, 123 being college graduates. Whole number of alumni 507, of whom 36 have died. The library has nearly 24,000 vols.—Rutgers female institute is one of the principal private academies for girls. It occupies a handsome brick edifice in 5th avenue, opposite the distributing reservoir, has an endowment to the value of $35,000, and affords a first class academic education. In 1859 there were 247 pupils. The Spingler institute, in 5th avenue, is another school for girls; and there are many others of a private character, less extensive but equally meritorious. The oldest school in the city is that of the Reformed Dutch church, founded in 1633, and still a flourishing academic institution. The Protestant Episcopal church school, founded in 1710, will soon come into an immense property by the testament of Dr. John Baker, who gave 46 acres of land on the East river shore near Yorkville to endow this as a charity school. There is in the Cooper institute an academy of design for women; and many other commercial and literary schools offer easy and generally cheap facilities for general and special education.—The New York hospital, the oldest institution of the kind in the state, was chartered by George III. in 1771. It is in Broadway above the city hall, approached through an avenue of noble elm trees, and has 3 large buildings, respectively 124 by 86, 128 by 90, and 93 by 68 feet, and each 4 stories high. The grounds cover about 2 acres. The asylum for the insane at Bloomingdale, opened in 1821, is a branch of the hospital; it has about 40 acres of ground and a fine botanical garden. In 1859 the total receipts of the hospital were $120,590.37; expenses, $112,781.04. Patients treated, 2,568; cured 1,771, relieved 269, discharged 218, died 315; of the deaths 174 were from incurable accidents; 1,825 were surgical cases. Of all the patients, 785 were natives, 1,045 Irish, [illegible] German, and 175 English. In 30 years there were 74,257 patients, of whom 54,726 were cured, 4,974 relieved, and 7,469 died. The asylum for the insane in 1859 treated 283 patients, of whom 55 recovered, 32 improved, and [illegible] died; in 10 years there were admitted [illegible]. There are 5 principal free dispensaries, the oldest founded in 1791. In 1859 there were 134,418 patients treated (62,067 native, 72,351 foreign), of whom 925 died; 12,667 vaccinations, and 262,683 prescriptions; whole expense, $21,463. The New York woman's hospital, for the exclusive treatment of diseases of women, is a new and very promising institution, the only one of the kind in the country. Its chief importance is due to some recent discoveries of great value in the cure of affections peculiar to the sex. There is also a lying-in asylum in Marion street. The institution for the deaf and dumb, incorporated in 1817, is at Washington heights, and is the largest of the kind in the country, employing 15 teachers, and meeting with gratifying success. The grounds comprise 37 acres. In 1859 there were 308 pupils, of whom 164 were males and 144 females. The institution for the blind, in 9th avenue, a handsome and spacious structure of stone, has 19 teachers, and in 1859 took care of 205 inmates or pupils, many of whom are well educated, and good workmen in the trades taught on the premises. The grounds are 800 by 200 feet; the building is 175 feet front, and 3 stories high. The society for the reformation of juvenile delinquents has an important reformatory institution on Randall's island, to which juvenile criminals and vagrants are sent. It is a state institution, but most of the inmates are from the city. In 8 years 2,641 children were received (2,177 boys and 464 girls), of whom 1,548 were Irish, 218 German, 150 English, 280 from other foreign countries, and 445 American. The juvenile asylum in 175th street supports and educates children from 7 to 14 years of age, placed there by parents and guardians or committed by magistrates. The children's aid society, for sending to the country destitute children, is doing much good, in connection with the local missions in the Five Points (a section of the 6th ward inhabited until within 5 years almost exclusively by the lowest prostitutes, thieves, and beggars) and other disreputable portions of the city, the ragged schools, and private charities. The association for the relief of the poor, started in 1843, has an organization which thoroughly supervises the city, and relieves all deserving poor not otherwise provided for. In 1859 $44,856 was thus spent; 9,281 families and 44,557 persons were relieved, and 47,000 visits were made, nearly all in January, February, and March. This association divides the city into 382 sections, having in each a gratuitous visitor. For 10 years, from 1845 to 1855, there was no increase in pauperism, though the population increased 67 per cent. From 1855 to 1857 pauperism materially increased, through financial revulsion; but since that year the current has set the other way, and the net result of 17 years shows an improvement upon indigence as compared with the increase of population of 142 per cent. Of 44,950 persons relieved by this association from 1854 to 1860, 31,002 were Irish, 4,872 German, 2,012 English and Scotch, 640 other foreigners, and 6,424 native-born. The latest summary shows that from Oct. 1859, to Oct. 1860, 8,031 families and 35,942 persons were relieved, 40,866 visits made, and $40,565.10 spent. The New York orphan asylum, on the bank of the Hudson at Bloomingdale, is a fine Gothic building 120 feet by 50, with 15 acres of land. The society was organized in 1806 by ladies, and is supported by private donations. The Leake and Watts orphan house in 112th street is a large and handsome edifice, delightfully situated in a plot of 26 acres, and has an income sufficient for the support of 250 children. At the Five Points the house of industry and the Five Points mission have to a great degree reformed that notorious locality, and extirpated most of the dens of degradation and crime once abounding there. Among the less prominent benevolent institutions are the prison association for the reformation of discharged convicts; the association for the relief of aged and indigent females; association for the benefit of colored orphans; ladies' home missionary society; American female guardian society; St. Luke's home for indigent Christian females; Protestant half orphan asylum; Magdalen female benevolent society; house and school of industry; marine society, the oldest society in the state; sailors' snug harbor, a retreat for seamen on Staten island; seamen's friend society; society for relieving children of seamen; mariners' family industrial society; St. Luke's hospital; eye and ear infirmary; ophthalmic hospital; and children's hospital and nursery. The principal Roman Catholic institutions, beside the Jesuit college of St. Francis Xavier, are the convent of Redemptorists or Order of the Most Holy Redeemer, in 3d street, attached to the church of that title; the community of missionary priests of the congregation of St. Paul the Apostle (a congregation founded in New York in 1859), in 59th street near the central park; the communities of brothers of the Christian schools in 2d street, attached to St. Vincent's academy, and in 131st street (Manhattanville), in connection with the academy of the Holy Infancy; the communities of ladies of the Sacred Heart connected with their seminaries for young ladies in 17th street and Manhattanville; the convent of the sisters of mercy in Houston street, with an asylum or house of protection for destitute women, and a free school; the houses of the sisters of charity, who direct an orphan asylum for girls in Prince street and one for boys in 51st street and the 5th avenue, an industrial school and a girls' school in 42d street, and St. Vincent's hospital in 11th street; St. Vincent's (French) orphan asylum in 24th street, under the patronage of the ladies of St. Vincent de Paul; the convent of the school sisters of Notre Dame in 3d street, where there is a school and an asylum for the care of 200 children during the absence of their parents; and the convent of the sisters of the Good Shepherd, who devote themselves to the reformation of fallen women, and have from 50 to 75 inmates in their asylum. There are also about 80 private benevolent societies, beside masonic, odd fellows', druids', united American, sons of Herman, German Verein, Hebrew benevolent, sons of temperance, and other lodges. The masonic order have about 100 lodges in the city. A foundling hospital has been projected, and the edifice is now building. The Cooper institute for moral, intellectual, and physical culture (see Cooper, Peter), is a fine edifice of 6 stories, 195 feet on 4th avenue, 143 on 8th street, 155 on 3d avenue, and 86 on 7th street. In the basement is a large lecture room 125 feet by 82, and 21 feet high, and in the 3d story is another of the same size. There are rooms for libraries, philosophical apparatus, and study, a free reading room, &c. The whole establishment is rated at over $500,000. The Bible house in Astor place occupies an entire block, with a front of 711 feet, and a depth of 50 feet; it is 6 stories (74 feet) in height. The American Bible society, next to the British and foreign the largest in the world, was founded in 1816, and had an income in 1859 of $435,956. For the advancement of agriculture and science there are the American institute with its farmers' club, and the mechanics' institute, the former holding annual fairs in the city.—The Astor library, now having 100,000 volumes, was founded by a legacy from John Jacob Astor in 1848. This library is for study and reference, no books being taken away. (See Astor Library.) The mercantile library, in Astor place, organized in 1820, is a lending library, and has about 55,000 volumes; its files of magazines and leading newspapers are very full. The association is composed of merchants and clerks, who become members on payment of a small initiation fee and annual dues. Other persons may acquire the privileges of the library and reading room by paying $5 annually. The society library, established in 1754, has a fine building 70 by 100 feet in University place, with 40,000 volumes of history and general literature. The historical society has a handsome fire-proof edifice in 2d avenue, with about 30,000 volumes, particularly of American history; it was founded in 1804. The other principal libraries are: union theological seminary, 24,000 vols.; apprentices' library, 19,000; Columbia college, 18,000; Episcopal theological seminary, 18,500; law institute, 8,000; American institute, 7,500; free academy, 7,000; New York hospital, 6,000; mechanics' institute, 5,000; institution for the deaf and dumb, 4,135; university medical department, 4,000; printers' library, 4,000; lyceum of natural history, 3,000; geographical society, 2,450; young men's Christian association, 2,300; and there are many other small libraries, beside the public school libraries furnished by the state. The city has a very good collection, principally of law and statistical works. A woman's library, the first in the country, has been opened (1860), under encouraging prospects, with several thousand volumes of scientific and general literature. There are many very good private libraries, belonging chiefly to lawyers and clergymen.—Art is cared for by the national academy of design, chartered in 1826, with schools for the study of antique and living models, giving annual exhibitions. There are also the Düsseldorf gallery, a collection of works of that school, in the new and beautiful institute of the fine arts in Broadway near Houston street; the international gallery; and the artists' studios, a large building in 10th street. Among the most valuable and interesting museum collections is that of Dr. Abbott, gathered during several years' residence in Egypt, where he was physician to Mehemet Ali. There are few collections of Egyptian antiquities more valuable than this. In 1860 it became the property of the historical society. The opera house, or academy of music, in 14th street near Broadway, is a handsome building of painted brick, with stone facings. It is 121 by 114 feet, very elaborate and ornate inside, with 4 tiers, and seats for 4,700 persons. Except the two Bowery theatres and Barnum's museum, the other places of amusement are of mean exterior, standing in back streets, with simply an entrance from Broadway. Inside, however, they are generally comfortable, and some are luxurious. With average attractions about 20,000 people nightly attend these places. The chief of them are Niblo's garden, the winter garden, Wallack's and Laura Keene's theatres, in Broadway; Bowery, New Bowery, National, and Stadt theatres, in the Bowery; Barnum's museum; and three negro minstrel halls. In summer the palace garden, Jones's woods, and many other outdoor places of entertainment, are frequented by large numbers of people.—There are 8 public and a few private parks. Among them are the Battery, 10½ acres (now being enlarged to about 30 acres), at the S. W. extremity of the city; the city hall park, 10½; Washington parade ground, 9½; union, 4; Stuyvesant, 4; Tompkins, 10½; Madison, 7; St. John's, 4; Gramercy, 1½; and the great central park of 843 acres, now being laid out. This park extends from 59th to 110th street, 2½ miles long, and from 5th to 8th avenue, ½ of a mile wide. It is to contain drives, bridle roads, foot paths, play grounds, ponds, lakes, exotic and native trees and plants, and to present all the features of a rural pleasure ground twice as large as Hyde park in London. Much of the work in the lower part is now (1860) completed or in a state of forwardness, and it already furnishes a delightful resort for thousands daily in fair weather. (See Park.) Fountains have been constructed in the city hall, Washington, union, Tompkins, Madison, Stuyvesant, St. John's, and Gramercy parks.—The leading clubs are the union and the Athenæum in the 5th avenue, the New York and eclectic in Broadway, the century in 15th street, and the New York yacht club. The union has a large and handsome brown stone house in 5th avenue and 21st street. The hotels of New York are among the largest and finest in the world. The chief of them are the Astor, La Farge, Everett, and Brevoort houses, and the St. Nicholas, Metropolitan, Fifth avenue, Clarendon, and New York hotels; and of more than 50 other large hotels, several are not much inferior to those named. The Astor house is the oldest of the great hotels. It was built in 1839 by John Jacob Astor, then the richest man in America.

It is a massive 6 story granite building in Broadway opposite the city hall park, the front occupying an entire block, with shops in the first story. This house accommodates about 600 guests, on either the American or European plan (that is, as boarders or lodgers, or both). The St. Nicholas, opened in 1854, is 6 stories high, fronting about 275 feet on Broadway and 200 on Spring street, built of white marble and brown freestone, and has 600 rooms with accommodations for 1,000 guests. It is luxuriously furnished throughout. The Metropolitan fronts 278 feet on Broadway, with a wing on Prince street 200 by 25 feet. The main building is about 60 feet deep, 6 stories high, all of brown freestone. This, like the St. Nicholas, is elegantly furnished, and conducted on the American or full board plan. The last, and most expensive and luxurious, is the Fifth avenue hotel, at the junction of Broadway, 5th avenue, and 23d street opposite Madison square. It is of white marble, 6 stories high, fronting on 3 streets, having room for more than 1,000 guests.—There are few monumental memorials in the city, except in the churchyards. In Union square is a colossal bronze equestrian statue of Washington, executed by H. K. Brown, at the cost of an association of private gentlemen residing in the neighborhood. At the junction of Broadway and 5th avenue is a monument to Major-Gen. Worth; it is a granite obelisk, inscribed upon the shaft with the names of battles in which he was distinguished during the war with Mexico. This is the only monument erected by the corporate authorities. In St. Paul's churchyard may be seen from the street a small marble obelisk to Thomas Addis Emmet, and beneath the portico a monument to Gen. Montgomery.—There are 11 public markets, all insignificant in appearance except Tompkins market, at the junction of 3d avenue and 6th street, a fine iron building 182 by 100 feet, opened in 1860. In 1859 there were brought to the city shambles 205,272 oxen and steers and 9,422 cows, yielding about 140,000,000 lbs. of beef; 48,769 calves, 3,000,000 lbs. of veal; 504,894 sheep, or over 25,000,000 lbs.; about 400,000 live hogs and as many carcasses, making 56,000,000 lbs. of pork; in all over 224,000,000 lbs. of meat, beside beef, veal, and mutton to a large amount ready dressed, poultry in enormous quantities, game, and fish. The supply of milk from the adjacent country is about 180,000 quarts per day. The surrounding waters are noted for yielding excellent oysters in great abundance. There is no considerable supply of fish taken near the city, except of shad in the spring, when immense quantities are caught in the bay and Hudson river. The annual catch is valued at over $100,000, though the season lasts but 6 or 8 weeks. Nowhere is the habit of eating away from home so general as in New York, owing to the great distance between residences and places of business; and this habit has made eating houses, lunch rooms, refectories, oyster cellars, bar rooms, &c., a prominent feature of the town. They are everywhere, open day and night, and thronged by all classes, according to their quality, from the millionaire to the vagabond.—The city government is vested in a mayor, a board of 17 aldermen elected for 2 years, and one of 24 councilmen annually chosen, and constituting the common council. The controller and corporation counsel are also chosen by the people. The mayor and the heads of departments have salaries of $5,000 per year. The mayor and aldermen appoint the street commissioner, city inspector, and Croton water commissioners. The street commissioner's department opens, extends, and alters streets, roads, parks, and wharfs, erects and repairs corporation buildings, supplies fuel, light, stationery, and other requisites to city offices, and collects assessments for local improvements. The city inspector's department cleans the streets and markets, records births, marriages, and deaths, grants permits for burial, collects market fees, and inspects weights and measures. The Croton board superintend the supplying of water to the city, build sewers, and lay and repair pavements and sidewalks. The controller has supervision of the financial affairs of the city and county, receiving and disbursing all moneys raised by tax and assessment. The extent of this business may be inferred from the footings of the balance sheet of the general ledger for 1859, viz.: $38,503,655.69. The actual expenditures during the year were, on city account, $6,655,626.34, and for state and county purposes, $3,302,878.42; total, $9,958,504.76, of which $9,860,926.09 was raised by tax. The city is in debt $17,801,560, of which $7,693,121 is for the first cost of introducing the Croton water, $1,000,000 for land damages for the same work, $255,600 for extending water works, $1,679,100 for the new reservoir, $190,000 for a new workhouse, $402,768 for buildings blown up by the authorities at the great fire of 1835, $5,406,971 for the central park, $520,000 for public buildings, $154,000 for education, and $500,000 for docks and slips. The total amount of interest, at 5 and 6 per cent., is $959,854. This debt is redeemable at several periods up to 1898, from a sinking fund now amounting to $6,364,394.85. There is another sinking fund of $135,827.52, for paying interest on the public debt. The revenues of these funds are such that it is believed that interest and principal will be paid without resort to taxation. Beside these revenues all the real estate of the city is held in trust by the sinking fund commissioners for the security of public creditors. This amounts to $43,000,000, of which the Croton works are valued at $15,475,000, parks $14,761,000, piers $3,400,000, school houses $2,359,000, markets $1,314,000, almshouse $1,250,000, and ferries $1,200,000. The leading items of city expenses are: charity and correction $665,000, city schools $1,246,000, street cleaning $320,000, docks $146,000, light $420,000, salaries $420,-

000; and of county and state paid by city, state schools $400,000, police $1,250,000, and state tax $930,000. The rapid property growth of the city is shown in the following table of valuation and taxation for 20 years:

Years.	Total real and personal estate.	Tax levied.	Rate of tax on $100.
1841	$251,194,920	$1,394,136 65	$0 56
1842	237,805,651	2,031,382 66	0 85
1843	229,229,081	1,747,516 59	0 76
1844	236,727,143	1,988,818 56	0 84
1845	239,995,518	2,096,191 18	0 87
1846	244,952,005	2,520,146 71	1 03
1847	247,153,303	2,581,776 30	1 05
1848	254,193,527	2,715,510 25	1 07
1849	256,197,143	3,005,762 52	1 17
1850	286,085,416	3,230,085 02	1 13
1851	320,110,859	2,924,495 94	0 91
1852	351,768,426	3,380,511 05	0 96
1853	413,686,933	5,069,650 05	1 23
1854	462,285,790	4,841,255 54	1 05
1855	486,998,278	5,843,822 83	1 20
1856	511,740,492	7,075,425 72	1 38
1857	520,559,482	8,066,566 52	1 56
1858	531,194,290	8,621,091 31	1 62
1859	552,022,722	9,860,926 09	1 79
1860	577,230,657	9,758,507 87	1 69

Large as these figures seem, they are far below the truth. In 1859 the state appointed commissioners to equalize and graduate the county and local valuation for assessments, who fixed the aggregate of real and personal estate for the city at the sum of $856,964,491, adding that it was still deemed too small. There is a county government in addition to that of the city, vested in a board of 12 supervisors, two chosen each year, who have partial control of taxation, civil and criminal courts, and county offices. The county officers elected by the people are supervisors, 5 justices of the supreme court, 6 of the superior court, 3 judges of common pleas, 8 of the marine court, and 8 of district courts; a district attorney, county clerk, sheriff, register, surrogate, and 4 coroners. New York is politically divided into 6 congressional, 4 state senatorial, 17 assembly, 8 judicial, 22 school or ward, and 217 election districts. Aldermen are elected from assembly districts, and councilmen, 6 on a ticket, from senatorial districts; school officers and constables from wards. Supervisors, judges (except district and police justices), and other county and city elective officers are voted for throughout the city. The city forms the 1st judicial district and the 1st military division of the state. The laws are administered by a supreme court of 5 judges, a superior court of 6 judges, a marine court of 3 judges, a court of common pleas with 3 judges, 7 district civil courts, courts of oyer and terminer (held by a supreme court judge), the general sessions and special sessions, and 4 police courts, beside the circuit and district courts of the United States. In 1858 there were in the city criminal courts of record 608 convictions, 207 being natives. In the special sessions, of 11,469 convicted, 1,742 were natives, 10,363 intemperate, 4,784 males, and 6,685 females; and of the latter 2,849 were vagrants.—There is a lively military spirit among the young men of the city, and some of the volunteer militia regiments rival veteran regulars in their drill. There is one military division, embracing 4 brigades, 16 regiments, 119 companies, 441 officers, 529 non-commissioned officers, 4,021 privates, 169 musicians, 5 general officers, and 21 in the staff; total at last inspection, 5,186. The full return shows a total of 6,224. There are 48 light infantry, 32 infantry, 23 cavalry, 10 rifle, and 6 artillery companies, beside an engineer corps. The state armory in the 7th avenue, just completed, is a very large brick structure with octagonal towers, and covers an area of about 80 by 150 feet. The arsenal in White street is in the Gothic style, of blue stone, 2 stories high, constructed with a view to defence as well as storage.—New York is supplied with pure water by the Croton aqueduct (see AQUEDUCT, vol. i. p. 730), from the Croton river, a small stream in Westchester co. The present receiving reservoir at 86th street, in the central park, holds 150,000,000 gallons; 2¼ m. below is a distributing reservoir holding 20,000,000 gallons. A new reservoir immediately N. of that at 86th street, and also in the park, is nearly completed, having 96 acres of water surface, 38 feet deep, and holding 1,030,000,000 gallons. Up to 1860, 266¼ m. of water pipes had been laid, supplying nearly every paved street in the city. The total cost of the works to 1860 was $15,210,630; receipts in 1859, $800,000; total receipts for water since it was introduced in 1842, $7,485,098. The sewerage of the city is not as thorough as it should be; but there are 100 m. of sewers, some of them extensive and costly. There are nearly 200 m. of paved streets, mostly of cobblestone; but of late years square block or Belgian pavement is chiefly used, and iron paving has been employed to a very limited extent. The footways are flagged. The city is lighted by 14,451 gas lamps, which burn every night from dusk until dawn; there are three companies in operation, supplying gas at $2.50 per 1,000 feet. The longest lighted street is Broadway and Bloomingdale road, 18½ m., with 895 lamps.—The fire department is entirely voluntary, the men receiving no remuneration except exemption from jury and military duty. By the last official report there were 1 chief engineer with 14 assistants, 2,234 members of engine companies, 1,411 of hose companies, and 582 of hook and ladder companies—total, 4,227; 50 engine, 56 hose, and 17 hook and ladder companies; and 86,000 feet of hose. Several steam fire engines have recently been introduced with success. The number of fires in 1858 was 261; the loss on buildings was $598,657, and on stock $514,990. The machines and men are housed in good buildings erected by the city, and furnished with gas, fuel, sleeping rooms, and baths. Since the introduction of the Croton water there have been comparatively few destructive fires. A board of five commissioners hear and determine disputes and offences in the department, and the fire wardens enforce the building and other laws for the prevention of fires. These boards and the chief engineer and his assistants are elected by members of the department. The firemen have an invested fund of $97,250 for the relief of widows and orphans of deceased or disabled members; the receipts in 1859 were $40,221, and the disbursements $38,890.—The police department extends over the metropolitan district, including New York and Brooklyn, and Kings, Richmond, and Westchester counties; it is under the absolute control of a board of three commissioners, appointed by the governor and senate. There is a superintendent for the whole district, a deputy for New York and one for Brooklyn, and 4 inspectors; and the force in New York consists of 27 captains, 110 sergeants, 48 roundsmen, 1,253 patrolmen, 101 on special duty, and 58 doormen; total, 1,597. There are 285 day and 493 night posts, 412 miles of streets in the patrol district, and 11 miles of piers. There are 27 precincts, including the detective squad. For the quarter ending July 31, 1860, there were 18,162 arrests (12,535 males, 5,627 females); offences against the person, 15,027, of which 2,913 were assaults, disorderly conduct 1,800, intoxication 7,247, street fighting 346, vagrancy 800, murder 10; among property offences were burglary 134, fraud 155, grand and petit larcenies 1,375, keeping disorderly houses 73, false pretences 59, violation of various laws 857, rioting 25. Of all the arrested, 8,986 were married and 9,176 single; 13,816 could read and write, 695 could read only, and 4,151 could neither read nor write; 3,595 were born in the United States, 9,389 in Ireland, 1,263 in England, 1,251 in Germany, 490 in Scotland, 314 in France, and 133 in Italy; and 409 were colored. Ages of males: 10 to 15, 646; 15 to 20, 1,444; 20 to 25, 2,348; 25 to 30, 2,295; 30 to 40, 3,296; 40 to 50, 1,663; over 50, 843. Ages of females: 10 to 15, 94; 15 to 20, 595; 20 to 25, 1,197; 25 to 30, 1,193; 30 to 40, 1,587; 40 to 50, 622; over 50, 339. As to occupations, 3,002 were returned as mechanics, 2,771 laborers, 1,438 housemaids, 1,247 prostitutes, 896 servants, 561 seamen, 501 housekeepers, 457 cartmen, 220 clerks, 213 peddlers, 179 boatmen, 173 hackmen, 22 teamsters, 86 drivers, 58 porters, 45 runners, 133 seamstresses, 122 merchants, 111 porter house keepers, 30 hotel keepers, 43 bar tenders, 63 grocers, 141 other liquor dealers, 101 junk dealers, 89 artists, 26 actors and 7 actresses, 20 doctors, 63 farmers and gardeners, 21 lawyers, 217 tradesmen, and 5 gentlemen. Losses by robberies amounting to $45,059 were reported, and $17,622 was recovered. The number of arrests is no guide to the number of offenders, since some are arrested from 5 to 20 times in a quarter for intoxication, each arrest being duly recorded. Of 671 workhouse commitments in 2 weeks for vagrancy, only 5 were for the 1st time, 311 for the 2d, 152 for the 3d, 3 for the 60th, and 4 for the 75th. The average result for a year shows the number of individuals arrested to be about one sixth of the number of arrests. Policemen are appointed during good behavior, and officers rise from the ranks. Patrolmen are paid $800 a year, sergeants $900, captains $1,200, inspectors $2,000, and the general superintendent $5,000. Telegraphic lines connect all the stations with the central office, at which there were received and transmitted during the quarter by their means 38,786 messages, giving notice of fires, lost persons and property, &c. There are 23 station houses (most of them built for the purpose), fitted up as lodging houses for the men, and having room also for lodging destitute or wandering persons, of whom 13,667 were accommodated during the quarter above named. A portion of the force form a harbor police, in boats, and another portion is a sanitary squad for the suppression of nuisances dangerous to health and life. This sanitary squad show that in the 6th and 7th wards there are 1,152 tenement houses, with 37,064 inhabitants, about 2,500 of whom live in a space of less than 200 cubic feet each. New York pays nearly $1,250,000 a year for police expenses.—Three commissioners of public charities and correction have charge of paupers and criminals. The institutions under their care, with the number of inmates during the year 1859, were as follows:

Institutions.	Inmates, Dec. 31, 1858.	Admitted during the year 1859.	Natives.	Foreigners.	Died.	Discharged.
Almshouse	1,701	3,731	718	3,013	284	2,755
Bellevue Hospital.....	826	8,801	1,242	7,559	942	8,067
Island Hospital.......	399	3,441	892	2,549	111	3,287
Small Pox Hospital...	7	134	78	56	12	111
Lunatic Asylum......	658	389	85	304	86	247
Nurseries.............	1,345	1,148	909	239	80	1,217
Workhouse............	903	4,720	..	..	33	4,540
Penitentiary..........	765	2,079	696	1,383	15	2,071
District Prisons.......	476	42,007	9,688	32,319	..	41,170

There were, at the close of 1859 (including with the above institutions the colored home, colored orphan asylum, and city cemetery), 7,982 persons in care of the department of charities and correction. In the Bellevue hospital there were 388 births. Of the children discharged from the nursery, 279 were bound out, 167 adopted, and 621 given to relatives. Of those committed to the district prisons, 25,538 were males and 16,469 females; 16,037 were married, 22,649 single, the rest widowed or unknown; 35,476 were intemperate; 15,461 could not read, 18,729 could not write, and only 3,117 were well educated. Of the foreigners, there were from Ireland 22,870, Germany 4,322, England 1,944, Scotland 900, France 392, Italy 296. The principal offences were: intoxication 11,683, vagrancy 7,055, assault and battery 2,839, disorderly conduct 2,920, petit larceny 3,160, murder 49. The commitments were chiefly for from 1 to 6 months. There were 2,278 paupers buried in the city cemetery, of whom 1,401 were natives and 877 foreigners, and 1,200 were children. Of outdoor poor, 5,046 adults and 7,812 children were relieved with money, and 29,515 adults and 45,477 children with fuel. Of the adults, 24,899 were foreign, 8,745 native, and 1,371 colored. The expenditures for the year were nearly $800,000, of which $28,646 was cash and $37,746 for coal for outdoor poor, $12,000 for nursing children, $18,000 for the colored home and asylum, $88,374 for dry goods, $11,414 for medicines, and $186,118 for provisions. The buildings in charge of the commissioners are solid and spacious. On Blackwell's island, the lunatic asylum, almshouse, penitentiary, island hospital, workhouse, and small pox hospital are all of granite quarried on the island by convicts. On Randall's island there are several large buildings for the care of foundling, orphan, and destitute children, and the house of refuge for juvenile delinquents. Bellevue hospital occupies two blocks at the foot of 26th street, East river. The city prison, or Tombs, fills a block in Centre street; it is 253 feet long by 200 feet wide, built of granite in the Egyptian style, with about 150 cells around the inside square. The city cemetery (potter's field) is on Ward's island, between Blackwell's and Randall's islands.—Nine commissioners of emigration have supervision of the landing and forwarding of immigrants, collecting commutation fees, and taking care of the sick. The landing depot is in Castle garden, at the Battery, and there is an emigrants' refuge hospital on Ward's island. In 1859, 79,322 bonded passengers arrived (32,652 from Ireland, 28,270 from Germany, 10,375 from England); 61,584 came in 322 sailing, and the remainder in 105 steam vessels. Of the immigrants, 3,510 were destined for the eastern states, 40,923 for New York, 9,991 for New Jersey and Pennsylvania, 15,790 for the western states and California, 740 Mormons for Utah, 2,200 for Canada West, and 5,066 for southern states. During the year there was an average of 676 persons in the hospital and refuge; average cost of support, $81.20 per year each. It is estimated that since the revolution 5,430,000 passengers have entered the country from foreign ports, of whom about 3,500,000 debarked at New York. (See EMIGRATION.) These immigrants bring an average of about $100 per head in cash; and the owners of the vessels in which they come pay toward the maintenance of the institutions designed for their benefit a commutation of $2 each.—The quarantine establishment is at Staten island, where the health officer resides, and where ships from infected ports are detained and purified. The earliest special acts to prevent the spread of infectious diseases were passed about 100 years ago, and in 1794 a regular quarantine was established on Governor's island. A quarantine was begun on Bedloe's island in 1797; but the severity of the yellow fever the next year induced the state to authorize the purchase of 30 acres in the town of Castleton, Staten island, to which the Bedloe's island building was removed. In 1819 a more substantial building was erected, in 1823 a fever hospital, and in 1829 a small pox hospital. As Staten island became thickly settled, the removal of the quarantine was asked for, but nothing was done up to 1856. In that year there were 769 cases of yellow fever on Staten island, the adjoining shore of Long island, and in south Brooklyn; of the 588 on Staten island, one third were fatal. In March, 1857, the legislature authorized the removal of quarantine, and land was bought at Seguine's point, 7 m. further from the city, but still on the island. Five days after the transfer, a mob burned all the buildings; new ones were put up, but they also were soon burned, and the site was thenceforward abandoned. The hostility to the regular establishment increased in strength; the Castleton board of health declared it a nuisance, and on the night of Sept. 1, 1858, the place was attacked by a mob, the sick were carried from the hospitals and laid upon mattresses in the fields, the officers and physicians driven off, and all the buildings save the women's hospital destroyed by fire; the next night the remaining hospital was similarly destroyed. The governor declared the island in rebellion, and sent troops there; but no further trouble occurred. Sheds have since been erected on the grounds, and the health officer resides there; but a floating hospital, anchored in summer about 12 m. away, receives patients suffering from yellow fever and other contagious diseases. The permanent location of quarantine is yet unsettled. There is a board of health in the city, composed of the mayor, resident physician, health commissioner, and common council, who possess summary power in all matters affecting the public health. The executive committee of this board hold daily sessions through the summer season. The ratio of mortality in New York is high, owing to the vast influx of unacclimated foreigners. In 1859 there were 21,645 deaths, of which 8,182 were of adults and 13,463 of children; 6,137, mostly adults, were of foreign birth, and 492 were colored persons; 1,573 deaths were from accidents and other causes than disease; males exceeded females by 1,633; one mulatto said to be 114 years old, one negro 107, and 3 women 109, 105, and 102. The principal diseases were: apoplexy 309, bronchitis 310, cholera infantum 1,364, congestion of the brain 489, congestion of the lungs 217, consumption 3,239, convulsions 1,816, croup 622, debility 425, diarrhœa 502, dropsy 244, dropsy in the head 907, erysipelas 141; puerperal fever 165, scarlet 840, typhoid 206, typhus 169; heart disease 456, whooping cough 353; inflammation of bowels 335, brain 468, lungs 1,167, stomach 157, throat 111; intemperance 118, marasmus 1,471, measles 261, palsy 257, teething 329, and from external causes, burned and scalded 135, various casualties 267, drowned 165, killed or murdered 28, old age 258, premature birth 374, suicide 56. The still-born, 1,331, are not included in the above totals. Since the cholera of 1849 and 1854 there has been no epidemic. Small pox and scarlet fever ran very high from

1850 to 1858, and measles from 1848 to 1858. The ratio of deaths since 1855 has been about 1 in 35. Burials, except in family vaults, have long been prohibited in the settled portion of the city, and the dead are now mostly taken to Greenwood, Evergreens, Calvary, and Cypress Hills cemeteries on Long island, New York bay cemetery on the New Jersey shore, and Trinity cemetery on the upper part of Manhattan island. —A condensed view of the statistics of manufactures, derived from the latest official returns, is presented in the following table:

Business.	Establishments.	Hands employed.	Value of raw material.	Value of manufactured articles.
Chemical processes..	263	6,049	$17,072,719	$31,217,513
Iron and metals......	454	11,480	8,708,217	15,794,744
Wearing apparel.....	253	19,541	7,196,916	12,685,551
Ornamental arts......	248	4,912	2,722,739	7,870,547
Navigation....	87	2,329	2,498,204	5,159,031
Furniture.............	208	3,699	2,027,252	4,616,395
Leather...............	158	4,342	1,832,985	4,166,440
Lumber...............	194	2,247	2,140,530	3,519,134
Steam engines........	18	3,139	1,827,800	3,322,800
Glass and pottery....	96	1,778	1,173,841	2,854,590
Mills..................	11	215	2,423,900	2,804,719
Fibrous substances...	60	2,045	1,238,552	2,618,493
Cars and wagons.....	62	1,286	570,481	1,319,575
Architecture..........	71	1,344	378,805	1,022,600
Miscellaneous.........	316	4,676	4,577,978	6,905,582
Total............	2,499	69,082	$56,390,919	$105,877,714

The amount of capital invested by these establishments in real estate was $21,434,002, and in machinery, $10,995,634. Some of the most extensive branches were as follows:

Business.	Establishments.	Hands.	Value of raw material.	Value of manufactures.
Sugar refineries.......	14	1,628	$4,507,500	$12,167,600
Tailors' shops..........	126	12,968	4,317,302	7,592,696
Silver ware.............	83	1,558	2,111,369	3,809,331
Steam engines.........	17	3,130	1,819,550	3,292,800
Ship building..........	25	1,773	922,816	2,593,761
Grist mills.............	8	175	2,137,200	2,497,719
Cabinet ware..........	98	2,116	685,143	2,236,794
Soap and chandlery..	31	355	1,505,571	2,230,927
Distilleries............	10	134	1,913,800	2,218,200
Furnaces...............	37	1,585	695,925	2,146,950
Hats and caps.........	51	1,577	1,211,020	2,082,502
Pianofortes............	38	1,185	481,315	2,000,162

Of the leading occupations, the directory for 1860 records 704 bakeries, 646 boarding houses, 80 breweries, 1,296 butchers, 918 cigar and tobacco stores, 180 fishmongers, 65 poulterers, 542 butter and milk dealers, 773 provision dealers and hucksters, 339 coffee and eating houses, 187 fruiterers, 259 confectioners, 282 flour and grain merchants, 3,624 grocers, 113 hotels, 307 oyster houses, 3,787 porter houses, 86 tea stores, 22 sugar refineries, and 469 wine and spirit merchants; 2,412 boot makers, 819 builders, 688 cabinet makers, 363 hatters, 60 carpet stores, 1,391 tailors, 223 china and glass dealers, 1,307 milliners and dress makers, and 73 shirt factories; 746 dry goods dealers, 1,278 variety stores, 258 coal dealers, 164 oil stores, 103 gas fitters, 195 furnishing stores, 569 hair dressers, 315 hardware stores, 212 iron works, 720 watchmakers and jewellers, 99 lace and 90 silk importers, 100 locksmiths, 155 lumber yards, 154 marble and stone yards, 464 painters, 121 piano makers, 207 plumbers, 100 stove stores, 108 turners, 62 umbrella makers, 107 upholsterers, and 84 whitewashers; 17 daily, 10 semi-weekly, 123 weekly, and 50 monthly newspapers, and 82 magazines and reviews; 114 stationers, 268 booksellers, 228 printing offices, and 129 private schools of note. There are also 576 agents by profession, 87 auctioneers, 133 bankers, 735 brokers, 49 pawnbrokers, 255 exchange offices, 284 blacksmiths, 37 engine and boiler shops, 167 machinists, 84 brass and 170 copper and tin smiths, 165 coopers, 481 druggists, 205 dentists, 91 nurses, 1,149 physicians, and 1,805 lawyers; 202 livery stables, 90 coach makers, 86 wheelwrights, 160 saddle and harness makers, and 222 leather dealers; 51 lithographers, 132 photographers, 233 engravers, 139 glass workers, 105 goldsmiths, 1,206 importers and commission merchants, 62 railroad offices, 30 steamship companies, 6 ship yards, 100 shipwrights, 50 riggers, 54 sail makers, 89 ship chandlers, 20 boat builders, and 95 undertakers. Nearly all these figures represent establishments instead of individuals, except in the professions. The general directory for 1860–'61 contained 150,303 names. At the beginning of 1859 the rates of wages for ordinary trades, such as carpenters, masons, and iron workers, ranged from $8 to $12 per week; for women as milliners, dress makers, book folders, &c., $3 to $7. The press of New York produces about 300,000 newspapers every day, beside an enormous weekly issue, circulating chiefly in the country. The leading morning journals range from 30,000 to 50,000 per day, and on occasions of public excitement sometimes twice as many. There are 10 German, 2 French, 1 Italian, 2 Spanish and 2 Welsh newspapers, one of the German having a very large circulation. The recently originated package express business of the country has its focus in New York, where there are 8 principal and many smaller companies. Beside the freight taken by shippers to their stations, about 300 large wagons are constantly employed in collecting and distributing packages in the city.—New York is preëminently a commercial city, second only in some respects to London. It was founded by the adventurous traders of the Dutch West India company, and has preserved its mercantile character through all vicissitudes. From 1790 to 1800 the population nearly doubled in consequence of the derangement of commerce in Europe, then distracted by wars. Subsequently, until 1812, the rate of progress was rapid, the population rising from 60,000 to nearly 100,000, when the war with Great Britain suspended foreign trade for 3 years, and for that period checked the city's growth. Peace restored prosperity, and in 10 years thereafter 66,000 were added to the census. The completion of the Erie canal in 1825 gave an extraordinary impulse to commerce, and in 10 years the population rose from 166,000 to 268,000, with trade in proportion, soon however to receive a serious if not a salutary check by the financial crisis of 1837; but the city soon began to recover, and in 5 years added to her census 44,000. Thenceforward the ratio of increase has been great and steady, with equal progress in foreign and domestic commerce, immensely increased by the golden stream from California, and only momentarily stayed by the panic of 1857. At this time New York has a population within her geographical bounds of more than 800,000, and within the suburbs of Brooklyn, Staten island, Jersey City, Hoboken, Mount Vernon, Astoria, Flushing, &c., properly embraced in her commercial circle, not less than 1,300,000, nearly all of whom depend directly upon the business of the city. The chamber of commerce, an influential body of leading merchants and business men, holds monthly meetings to consider questions affecting the interests of trade and commerce generally. It has been in existence since 1768. The imports into New York during the year ending June 30, 1859, were $244,341,542; exports, $137,696,187; revenue from customs, $38,834,212. The imports of New York average 66 per cent. of all that come to the United States, and the exports about 35 per cent. The importation of articles duty free amounted to $29,184,496, of which the principal items were:

Coffee	$9,054,884	Paintings and statuary	$267,920
Tea	7,011,662	Guano	148,889
Madder	1,866,764	Linseed	458,814
Wool	2,028,887	Dyewoods	469,145
Raw silk	1,824,148	Copper	748,205
Rags	955,266	Gold and silver coins and bullion	1,614,101
Tin	915,942	Peruvian bark	258,747
Seeds and trees	892,221		
Reeds	812,129		

The importation of dutiable articles amounted to $189,046,597, of which the principal were:

Beer, ale, and porter	$302,827	Opium	$215,938
Buttons	648,789	Paints	614,819
Cheese	128,770	Paper boxes, cards, maché, writing and blank books	584,896
Watches and materials	2,287,822	Printed books, magazines, and papers	580,412
Clothing	1,095,231	Raw hides and skins	8,437,917
Manufactures of cotton	19,408,658	Salt	897,898
Toys	218,952	Silk piece goods	20,465,182
Flowers and feathers	654,849	Other silks	5,664,080
Manufactures of flax	8,482,886	Soap	858,186
Fruits, mostly dried	2,150,456	Soda	1,695,914
Furs	2,944,845	Spices	985,559
Manufactures of glass	1,440,009	Brandy	2,220,048
Gems	840,800	Pure spirits	1,156,071
Jewelry	411,181	Brown sugar	19,192,466
Gums	880,980	Tin, plate and sheet	4,215,768
Hair and hair goods	989,817	Cigars	2,201,186
Hats and bonnets	1,047,549	Other tobacco and snuff	1,482,618
Hemp and its manufactures	400,780	China ware	1,886,676
India rubber	897,111	Champagne	1,207,847
Indigo	675,158	Other wines	1,186,487
Iron and steel	9,940,892	Mahogany	218,957
Jute	998,788	Rosewood	110,518
Laces of all kinds	3,594,210	Woollen piece goods	10,418,886
Lead	2,212,989	Worsted piece goods	11,807,149
Gloves of leather	1,280,760	Shawls of wool	2,545,808
Leather	4,572,482	Blankets	1,251,269
Liquorice	495,008	Carpeting	1,774,639
Matting	238,166	Hosiery	621,544
Molasses	1,657,540	Woollen yarn	856,235
Musical instruments	279,885	Other goods of wool	1,917,418
Nuts	889,845	Zinc	1,225,905
Oils of all kinds	1,831,227		

The principal exports were as follows:

Ashes	$465,814	Manufactured tobacco	$1,[illegible]
Beef	1,561,894	Cotton goods	[illegible]
Biscuit	218,979	Manufactures of wood	[illegible]
Boards and lumber	1,344,979	Bark and dyewoods	[illegible]
Books	114,400	Oil cake	[illegible]
Butter	420,097	Sperm oil	[illegible]
Candles	298,240	Whale oil	[illegible]
Cordage	208,796	Whalebone	[illegible]
Carriages	438,678	Paints	[illegible]
Cheese	500,279	Paper	[illegible]
Clover seed	431,416	Pork	[illegible]
Coal	207,832	Potatoes	[illegible]
Copper and brass	852,634	Rice	[illegible]
Corn and meal	742,949	Rosin and turpentine	[illegible]
Cotton, raw	8,912,511	Rye, oats, and peas	[illegible]
Drugs	599,498	Skins and furs	[illegible]
Fish	247,606	Soap	[illegible]
Gold and silver coin	19,218,558	Pure spirits	[illegible]
Bullion	24,412,267	Spirits turpentine	[illegible]
Gunpowder	112,090	Tallow	[illegible]
Hams and bacon	646,968	Tobacco	[illegible]
House furniture	425,894	Wearing apparel	[illegible]
Iron and nails	2,718,176	Wheat	[illegible]
Lard	1,306,825	Wheat flour	[illegible]
Leather	242,925		
Boots and shoes	217,584		

The commercial growth of New York, compared with that of the whole country, will be seen by the following tables:

IMPORTS AT DIFFERENT PERIODS.

Years.	New York.	Other ports.	Per cent. for N. York.
1821	$23,629,000	[illegible]	[illegible]
1831	57,077,000	[illegible]	[illegible]
1841	75,713,000	[illegible]	[illegible]
1851	141,546,000	[illegible]	[illegible]
1855-'56	210,160,454	[illegible]	[illegible]
1856-'57	236,498,485	[illegible]	[illegible]
1857-'58	178,475,786	[illegible]	[illegible]
1858-'59	229,181,349	[illegible]	[illegible]

EXPORTS FOR FOUR YEARS.

Years.	New York.	Other ports.	Per cent. for N. York.
1855-'56	$111,119,500	[illegible]	[illegible]
1856-'57	184,808,298	[illegible]	[illegible]
1857-'58	108,840,924	[illegible]	[illegible]
1858-'59	117,589,825	[illegible]	[illegible]

Before 1855 about one half the imports at this port consisted of dry goods; since that time the rapid increase has been chiefly in general merchandise. The following is a condensed view of the course of trade for the first 9 months of 1858, 1859, and 1860:

EXPORTS.

Character.	1858.	1859.	1860.
Merchandise	$45,646,800	$49,246,500	[illegible]
Specie	20,602,900	57,926,500	[illegible]
Total, 9 months	$66,249,700	$107,178,000	[illegible]

IMPORTS.

Character.	1858.	1859.	1860.
Dry goods	$47,707,100	$93,488,000	[illegible]
Merchandise	67,618,000	104,256,200	[illegible]
Total	$115,820,100	$197,744,200	[illegible]
Duties	20,694,472	81,514,949	[illegible]

The principal articles of domestic product exported were 1,269,687 bbls. flour, 6,669,568 bush. wheat, 1,889,821 bush. corn, 171,[illegible] bbls. beef and pork, 1,422,491 galls. oil, and large quantities of bacon, lard, cheese, and butter. More than ⅔ of the customs revenue of the United States is collected at New York, where from 700 to 800 revenue officers and clerks are employed.—During the financial year 1858–'9, there were cleared from the port of New York 1,911 American vessels, tonnage 925,528, with 30,519 men, and 1,175 foreign, tonnage 550,751, with 22,356 men; total cleared, 3,086 vessels, 1,476,279 tons, and 52,875 men. In the same period there were entered 2,659 American vessels, tonnage 1,320,296, with 40,011 men, and 1,245 foreign, tonnage 569,854, with 23,623 men; total entered, 3,902 vessels, 1,890,144 tons, and 63,634 men. Of the clearances, 266 were for England, 619 for British North America, 296 for British West Indies, 508 for Cuba, 108 for New Granada, and 40 for China. Of the entries, 519 were from England, 404 from British North America, 317 from British West Indies, 169 from France, 891 from Cuba, 209 from Porto Rico, 167 from Brazil, and 55 from China. The tonnage belonging to New York is as follows: registered permanent, 639,021; registered temporary, 205,411; enrolled and licensed, 586,506; under 20 tons, coasting, 13,207; steam registered 70,898, steam enrolled 120,498; coasting trade, 586,506; aggregate tonnage of the city, 1,444,361, exceeding that of any other port that ever existed. There is no actual record of the coasting trade of New York, but it is certain that within the past year there were not fewer than 9,500 arrivals coastwise and an equal number of clearances. By the census of 1855 there were 25 ship building establishments in and near the city, some of them the most extensive in the country. In 1858 there were built within the New York collection district 7 ships and barks, 2 brigs, 21 schooners, 84 sloops, and 26 steamers—in all 140 vessels, of 25,854 tons. In the year ending Sept. 30, 1860, there were launched or building in the New York and Long island ship yards, 23 steamers (of which 3 were of iron), measuring 20,468 tons, and valued at $3,500,000; also 1 ship, 2 barks, 3 brigs, 2 schooners, 4 pilot and 7 ferry boats, registering 5,781 tons, and valued at $762,000.—The internal trade of New York by water passes north and west over the Hudson river to the Delaware and Hudson, Erie, and Champlain canals, by steamboats, barges, canal boats, and sailing vessels; eastward over Long Island sound in steam and sailing craft of larger tonnage; and southward in coasting vessels. The completion of the Erie canal in 1825 made New York the maritime outlet for the surplus produce of the great West. Previous to that time western produce went down the Susquehanna to Baltimore or the Schuylkill to Philadelphia; and, except in the region tributary to the Hudson river and Long Island sound, New York had no domestic commerce. By the Erie canal she was placed in easy communication with a wonderfully fertile region of 1,000,000 square miles, with 2,500 miles of navigable waters, and a population then of less than 500,000, now increased to 9,000,000 or 10,000,000. In 1858 the Erie canal brought to tide water 1,496,687 tons of freight, including wheat and flour equal to 3,563,901 bbls. of the latter, nearly all of which came to New York city. The water trade eastward is mostly the carrying away of raw materials and the return of manufactured articles. The principal railroads of the state, terminating here, in 1859 carried 4,243,000 passengers, and 1,252,881 tons of freight, of which 302,128 was animal and 189,960 tons vegetable food. The New York central railroad in the same time carried 2,124,439 passengers and 765,407 tons—172,076 animal and 301,507 vegetable food—nearly all arriving at the city. Beside these, there are 4 railroads in New Jersey carrying at least 2,000,000 passengers and a proportionate amount of freight. During the first 9 months of 1860, there came to New York, by railroad and canal, 2,398,819 bbls. flour, 8,677,552 bush. wheat, 10,823,177 bush. corn, 97,142 bush. rye, 146,833 bush. barley, 2,807,211 bush. oats, 39,363 tierces and bbls. beef, 91,666 bbls. pork, 58,253 packages bacon, 97,786 packages lard, and 327,777 packages cheese.—There are 54 banks doing business in the city, of which the bank of the state of New York, founded in 1784, is the oldest. The condition of these banks, as officially declared Sept. 30, 1860, was as follows:

Liabilities.		Resources.	
Capital	$69,290,475	Loans	$120,271,555
Net profits	7,559,329	Stocks, real estate, &c.	19,393,478
Circulation	9,186,897	Due from banks	7,368,063
Due other banks	21,271,956	Cash items	22,418,015
Deposits	81,283,120	Specie	20,116,447
Miscellaneous	1,029,951	Overdrafts	54,175
Total	$189,621,728	Total	$189,621,728

In 1853 a clearing house was established, at which all banks are required to settle their balances with each other in specie every morning, and publish a weekly statement of their condition. For the year ending Sept. 30, 1859, the clearing house exchanges were $6,448,005,956, or $20,867,333.19 per day. The average daily liability of the banks in 1859 was $95,124,728, and the amount of specie was 28 per cent. There are 10 marine insurance companies, with an aggregate capital of $8,000,000; earnings in 1859, over $12,000,000; losses and expenses, $8,000,000; amount insured, $740,000,000. Marine losses for the year on ships, $16,702,752; on cargoes, $20,553,420; total, $37,256,172. For fire insurance there are 90 companies, the oldest dating from 1787; gross capital, $18,000,000; risks, over $700,000,000. Eight new companies were organized in 1859. In 1858 the capital of the city companies was $16,696,010; surplus, $5,282,493; premiums, $5,559,830; gross income, $6,962,216; losses, $1,904,044; dividends, $2,434,976; taxes, 272,128; gross expenditures, $6,079,304; outstanding liabilities, $2,445,442. The transactions in 1859 of 14 life insurance companies whose business is mainly in this city, were as follows: policies at commencement of the year, 45,092;

amount insured, $125,306,073; premiums for a year, $4,583,662. The claims paid in 1858 were $1,260,494; expenses, $591,876; assets, $18,346,322. There are 18 savings banks, holding $43,410,083 from 196,979 depositors; increase of deposits in one year, $8,000,000. Of the 3 largest savings banks, the Bowery has $9,573,400 on deposit, Bleecker street $9,544,479, and Seamen's $8,188,715. The sixpenny savings bank (for children) has $146,294 from 8,369 depositors. Average to each depositor in all the banks, $208.91; deposited in 1859, $30,808,383; withdrawn, $28,308,109; received for interest, $3,049,924. Three more banks for savings were incorporated in the winter of 1860. In addition to this accumulated capital, there is $74,000,000 of individual deposits in banks of discount, $17,000,000 in life insurance companies, and $10,000,000 in trust companies, making $144,500,000 of cash laid up by the working classes of the city. —The New York post office is by far the most important in the country. During the year ending Sept. 30, 1860, the receipts were $904,121.49, of which $673,234.09 was for stamps and stamped envelopes; 15,507,654 letters were mailed, exclusive of those coming from other offices to be remailed; 18,252,584 letters were received for delivery in the city; 8,416,774 letters were remailed to other offices; 4,631,987 circulars were mailed; 4,818,949 mail letters, 1,271,640 city letters, and 618,518 newspapers were delivered by carriers; 3,516,567 letters and 860,218 newspapers for the mails, and 678,494 city letters, were collected from the street boxes and stations; 172,821 registered letters were sent and received; 570,407 letters were sent to and 338,086 were received from California; 2,942,449 foreign letters were sent and 2,436,535 received; 270,602 letters were sent to the dead-letter office; 200 steamships left with mails for foreign ports, and 201 arrived, in the year. During the quarter ending Sept. 30, 46,264 locked mail letter bags were sent out, and 43,313 received; and 43,787 bags of newspapers and other printed matter were sent, and 40,388 received. The number of daily mails sent out is: north, 1,641; east, 1,049; west, 950; south, 1,125. There are 574 street letter boxes, 28 collectors, and 89 carriers; 228 clerks in the general office, and 14 at the 4 stations; 4,262 boxes are rented at the general office.—Henry Hudson discovered Manhattan island, Sept. 12, 1609. A temporary settlement was made by the Dutch in 1612, and a permanent one in 1623, when a small fort was built. The same year the first white child was born in the colony, Sarah Rapelje. Peter Minuits, the first Dutch governor, arrived in 1626, and purchased Manhattan island of the Indians for $24. A new fort was begun in 1633, on the present site of the Battery. Wouter van Twiller became governor in 1633, and William Kieft in 1638. Tobacco was cultivated and slavery introduced before 1638. In 1644 a city hall was built in Coenties slip, and in 1647 Gov. Stuyvesant arrived; he was the last of the Dutch governors, ruling for 17 years. In 1653 a wall was built across the island at Wall street, for defence against Indians and the expected troops of Cromwell. In 1656 the city had 120 houses and 1,000 inhabitants. Wharfs were built in 1658, and a windmill in 1662. Charles II., having come to the English throne, assumed the Dutch occupancy in North America to be a usurpation, and on March 12, 1664, granted the entire territory to his brother the duke of York. A small fleet arrived in August, and the city surrendered without resistance, Col. Richard Nicolls assuming the office of governor. The name (New Amsterdam) was changed to New York, and an English form of government was established, which lasted 9 years; when, in July, 1673, the Dutch recaptured the city, named it New Orange, made Anthony Colve governor, and drove out the English. Their triumph was short, for by the peace between England and the states-general, the city was restored to the British crown, and once more called New York, and the Dutch power was finally ended, Nov. 10, 1674. For the remainder of the 17th century, the progress of the city was rapid. The old Dutch charter was replaced in 1686 by a more particular and liberal grant from the crown known as the Dongan charter. The only untoward event of the period was the unsuccessful rebellion of Jacob Leisler in 1689. (See LEISLER.) At the close of the century, New York had about 750 dwellings, and 4,[illegible] white and 750 black inhabitants. The first Trinity church was built in 1696. In 1702 a pestilent fever was brought from St. Thomas, from which nearly 600 persons died, or about 1 in 10 of the population. Some Huguenot families arrived, and, in spite of the state, freedom of religion was practically secured. Wall and other streets were paved, watchmen employed, and in 1711 a regular slave market was established. In 1719 the first Presbyterian church was built. The "New York Gazette," the fifth newspaper in the colonies, was begun in 1725, and Zenger's "Weekly Journal" in 1733. Stages ran to Boston in 1732, being 14 days on the journey, and infectious fever prevailed with great fatality. In 1735 occurred the first attack upon the freedom of speech. By the death of Gov. Montgomerie, the duties of the office devolved until the appointment of a new governor upon Rip van Dam, the oldest member of the council. Van Dam officiated a year, when Gov. Cosby arrived, and claimed half the fees collected by Van Dam. A suit followed; and by the suppression of almost all the forms of justice, Van Dam was beaten. The people took up the quarrel, which was really the first step of separation or distinction between the people of Great Britain and those of the colony; lampoons, satires, and libellous ballads were rife, and the two newspapers joined in the controversy—the "Gazette" supporting Cosby and the "Journal" violently opposing him. The council directed certain copies of the "Journal" to be burned, and ordered the mayor and magistrates to attend the ceremony; they refused, and the general assembly sympathized with them. Zenger was imprisoned for libel, and Cosby's party strained every nerve to convict him, going so far as to dismiss from the bar eminent lawyers who took his part. Against this, and in the face of the most outrageous rulings of the court, a jury declared Zenger not guilty. The year 1741 was remarkable for fire, pestilence, and insurrection; the Dutch church in the fort and a part of the fort itself were burned; yellow fever prevailed to a considerable extent; and the imaginary negro plot occurred. This so called plot, which was never proved, created the greatest alarm; the fire in the fort was charged to the negroes; arrests were made, and upon the testimony of a single servant girl a number were executed. The most important victim was John Ury, a Roman Catholic priest, doubtless perfectly innocent, who was hanged in August. Within 6 months 154 negroes and 20 whites were imprisoned, of whom 55 were convicted, 78 confessed, 13 negroes were burned at the stake, 20 were hanged, 78 were transported, and the remainder were discharged. The evidence in any of the cases would now be considered worthless. In 1743 a pestilence carried off 217 persons, chiefly from marshy localities. In 1750 a theatre was established. In 1755 St. Paul's church was built. In that year began the stamp act excitement, and a colonial congress assembled in New York; figures of the governor and the devil holding the stamp act were burned in public. In 1765 the sons of liberty were organized to oppose the stamp act, a committee was appointed to correspond with other colonies, and the governor was burned in effigy. In 1770 a meeting of 3,000 citizens was held, who resolved not to submit to oppression, and a slight collision with the troops occurred; a committee of 100 was appointed to resist the importation of obnoxious goods, subsequently restricted to tea only; the statue of George III. in the Bowling Green was destroyed, and a marble statue erected to Pitt, for his exertions in the repeal of the stamp act. In 1772, Pitt having become Lord Chatham and changed his course, this statue was mutilated; it was removed in 1788, and the torso is now at a hotel in West Broadway. In 1773 the vigilance committee agreed to resist the landing of tea, and in 1774 a ship thus laden was stopped at Sandy Hook and sent back to England, 18 chests secretly landed being destroyed. The same year, at a great meeting on the common, strong revolutionary resolutions were passed. On April 3, 1775, the colonial assembly finally adjourned; on July 25 delegates were elected to the continental congress; and on Aug. 23 congress ordered Capt. Lamb to remove the cannon from the city forts to the highlands; resistance was offered from the Asia man-of-war, but 21 pieces, all that were mounted, were secured. On Aug. 26, 1776, by the result of the battle of Long island, the city fell into the hands of the British, and so remained until the close of the war. On Sept. 21, 1776, a fire destroyed 493 houses, all the west side of Broadway from Whitehall to Barclay street (⅛ of the city) being laid in ashes. On Aug. 7, 1778, another fire destroyed 300 buildings around Cruger's wharf, on the East river. The winter of 1780 was very cold; ice covered the bay, and heavy teams and artillery crossed to Paulus Hook (Jersey City). On Nov. 25, 1783, the British finally evacuated the city, and Gen. Washington marched in; the day is still annually celebrated under the name of evacuation day. During the war the British had nearly destroyed all the churches except the Episcopal, making prisons, riding schools, and stables of them; the college and schools had been closed. In 1785 the first federal congress organized at the city hall on the corner of Wall and Nassau streets; in the next year the first Roman Catholic church (St. Peter's, Barclay street) was built, and the first divorce suit was brought. The adoption of the federal constitution was grandly celebrated in 1788; and the inauguration of President Washington took place at the city hall, April 30, 1789. In 1788 a serious riot occurred at the hospital, in consequence of the careless exposure of dissected bodies. The doctors were mobbed, their houses invaded, some of them were compelled to fly from the city, and others took refuge in the gaol. A census in 1790 showed a population of 29,906. In 1791 yellow fever carried off 200 victims. The city, now just reaching the lower corner of the park, began to extend along the Boston road (Bowery) and Broadway; an almshouse was built in the park, and had 622 inmates in 1795. The park theatre was begun this year and opened in 1789. In the latter year 2,086 persons died in 3 months from yellow fever, which returned at intervals until 1805, but with diminishing virulence. The Manhattan company, for supplying the city with water, was chartered in 1799. On Sept. 20, 1803, the corner stone of the city hall was laid by Mayor Livingston; the hall was finished in 1812, when the old one in Wall street was sold. In the winter of 1804, 40 stores in Wall and Front streets were burned. The free school society, the germ of the present board of education, was incorporated in 1805. The city had now 78,770 inhabitants, and streets were extending across the Canal street marsh, while the collect or swamp where the city prison now stands was being filled up. The spread of population was stimulated by the yellow fever, which drove a third of the people from their dwellings below the park to the woods and fields north of the fresh water. In 1807 Robert Fulton navigated the first steamboat from near New York to Albany. In 1812 Fulton leased the Brooklyn ferries for $4,000 a year, to run by steam. A great fire in Chatham street in 1811 consumed nearly 100 houses. The war of 1812 with Great Britain temporarily checked the city's growth, the census in 1814 showing a decrease of 2,312 from 1810. In Aug. 1812, experiments with gas lights were made in the park. Fulton's steam frigate was launched in Oct. 1814. In 1821 the survey and laying out of the island north of Houston street was completed after 10 years' labor. In the winter of this year the Hudson river was frozen over for the first time in 41 years. Yellow fever reappeared in 1822, occasioning a great panic; the city south of the park was fenced off and nearly deserted, families, merchants, banks, and even the city government removing to Greenwich (now the 9th ward) and upper Broadway; yet the mortality was not comparatively great, fewer than 200 persons being victims. This panic materially improved property north of Canal street, and correspondingly expanded the city. In 1823 interments south of Canal street were forbidden, Washington square was regulated, and a gas company organized—gas being first generally used two years later. The city now had 12 wards, and was growing at the rate of 1,000 to 1,500 houses per year—a growth occasioned by the completion of the Erie canal, the first boat from which arrived Nov. 4, 1825. The canal celebration was the grandest affair ever known in the country. In the next decade New York received some severe blows from pestilence, fire, and financial disaster. The cholera appeared in 1832, carrying off 3,513 persons, and again in 1834, taking 971. On Dec. 16, 1835, the most disastrous fire known to the city swept the 1st ward east of Broadway and below Wall street, destroying 648 of the most valuable stores, the merchants' exchange and the South Dutch church, and property valued at more than $18,000,000. With almost miraculous energy the city was rising from these ashes, when the financial explosion of 1837 came, with suspension of specie payments, failures, and bankruptcy throughout the country. Even this, however, but momentarily checked the progress of the city, her population increasing from 202,600 in 1830 to 312,700 in 1840. In 1842 the Croton water was introduced. On July 19, 1845, a great fire occurred between Broadway, Exchange place, Broad, and Stone streets, destroying over $5,000,000 worth of property. Within 40 years theatres have been burned as follows: the Park in 1821 and 1848; the Bowery in 1828, 1836, 1838, and 1845; the Mount Pitt circus in 1828; La Fayette in 1829; the national in 1839 and 1841; Niblo's in 1846; the Franklin in 1849. In 1849, by legislative act and vote of the people, radical changes were made in the city charter, the selection of leading officers being opened to popular suffrage, and the police partially (since wholly) taken from the control of the mayor. The most serious popular disturbance of recent times was the Astor place riot in May, 1849, growing out of the assumed hostility of two prominent actors. (See Macready, William C.) Cholera came again in the summer of 1849 and carried off 5,071 persons; and lastly in 1854, when 874 died. The first city railroad was built in 1852, in anticipation of the projected industrial exhibition, which opened with great ceremony (the president of the United States officiating) July 14, 1853, in a magnificent crystal palace in the form of a Greek cross, built of iron and glass, 365¼ feet in diameter each way, with galleries, and a dome 123 feet high and 100 wide, the flooring covering 5¼ acres. This building was burned in 1858. In 1857 occurred another financial panic, but its consequences were not extensively disastrous. In the same year the radical change in the control of the police made by the legislature, and the resistance to the act by Mayor Wood, resulted in popular disturbances in June and July. The first serious trouble was on June 9, when a conflict occurred for the possession of the street commissioner's office—the governor having appointed a new head, and the mayor refusing to deliver the keys. An order was issued for the arrest of the mayor, and a detachment of the new or metropolitan police went with the officer to serve it. They were resisted by the old or municipal police, who adhered to the mayor, and a savage fight ensued on the steps of the city hall; many were hurt, but none killed. The 7th regiment chanced to be on parade for a visit to Boston, and were summoned to the city hall. The governor of the state came to the city, but the whole matter was soon transferred to the courts in the form of a suit for possession of the disputed office. There was no further disturbance until July 2, when the decision of the court of appeals sustaining the new police law was announced. This law had been violently denounced by the mayor, and the more turbulent and dangerous of the people openly resisted it. Under pretence of obedience to the court of last resort, the mayor disbanded his police on the eve of the national celebration. On the 4th the usual license of a holiday led to various disturbances, resulting finally in a serious conflict known as the "dead rabbit riot." The dead rabbits were a faction of the rowdy and vagabond boys and young men of the Five Points, mostly composed of thieves and convicts. On the night of the 3d they attacked the police patrolmen in the Bowery, but were driven off by another faction known as Bowery boys. The next day an assault was made upon the police in Jackson street, and in the evening there was a series of fights in the Five Points, where even the women threw bricks, stones, pots, and kettles at the police from the tops of the houses. The Bowery boys mingled in the fight also, and for hours there was a running contest over most of the 6th ward. There was some pistol firing, and the mob got possession of a howitzer, but did not use it. Order was restored by calling out a detachment of military, who marched to and fro over the ground, where they found piles of bricks and stones, ready for use by the mob. Some of the police were badly bruised, and one died from his wounds; 11 persons in all lost their lives through this riot.—The original charter of New York city was granted by James II. in 1686, amended by Queen Anne in 1708, further enlarged by George II. in 1730, confirmed by the general assembly of the province in 1732, and specially affirmed after the revolution by the state legislature. This charter was of the most liberal nature; it made New York practically a free government, established an elective council, and gave unusual privileges to the people. The most important property grants were the exclusive possession and control of the waters to low water mark on all the shores opposite Manhattan island, with the ownership of the ferries for all time, and the proprietorship of all waste and unoccupied lands on the island. The "mayor, aldermen, and commonalty" were made a perpetual corporation; municipal officers were created; an annual election was ordered, at which all freeholders and those made freemen by the act of the city might vote; full power was conferred to make roads, bridges, and ferries, establish markets, regulate the sale of merchandise, make free citizens, hold courts and administer justice, erect and own wharfs, grant licenses for all manner of retail trade, and do all necessary acts for the establishment and maintenance of the government. The mayor was appointed by the provincial governor and council until the revolution; by the state governor and council of appointment until 1821; by the common council until 1834; and thenceforward by the people in general election. No direct changes were made in this charter for 100 years; but much of the judicial power had been transferred to regular courts, and the number of members of the common council had increased with the growth of the city. In 1829 the people in city convention prepared, and the legislature adopted, the amended charter of 1830. It divided the common council into two boards of concurrent powers, gave the mayor a veto, and provided against extravagance by prohibiting the drawing of money from the treasury except upon previous specific appropriations. The next amendments were made in 1849, when the government was divided into 7 departments, the head of each being elected by the people; the mayor's term was extended to two years; and further checks were put upon hasty or wasteful expenditures by requiring previous publicity and prohibiting members of the common council from being interested in city work. In 1853 the board of assistant aldermen was changed to a board of 60 councilmen, the term of aldermen extended to two years, and city works and property were ordered to be let or sold by contract or at auction; the aldermen were displaced from the court of sessions and the oyer and terminer and the appointment of policemen (up to this time made practically by the aldermen) was confided to the mayor, city judge, and recorder. The last and most important changes were made by the amendments of 1857; the city was redistricted for aldermen, reducing the number from 22 to 17; the 60 councilmen were reduced to 24; the aldermen were no longer supervisors, a new county board being created; the mayor and common council were entirely dissevered from the police; the salaries of aldermen and councilmen were abolished (but have since been restored), and their powers were materially restricted, particularly in the license for selling liquors, that duty going to a special commission; the mode of choosing heads of departments was changed in several instances from election to appointment by the mayor and aldermen; some departments were abolished; and still further safeguards were enacted against reckless expense, by requiring a nearly unanimous vote to exceed certain specified appropriations, and making malfeasance on the part of a member of the common council an indictable offence. But with all these changes, the charter of 1730, known as the "Montgomerie charter," is recognized as the fountain head of city government, and upon its liberal provisions rest the vast public and private interests of the municipality.

NEW ZEALAND (so called by its Dutch discoverer Tasman, in honor of Zealand in the Netherlands), a British colony consisting of 3 islands in the South Pacific ocean, called respectively the North island, the Middle island, and the South or Stewart's island, stretching from lat. 34° 15′ to 47° 30′ S., and between long. 166° and 179° E., and about 1,200 m. S. E. from Australia; pop. about 120,000, of whom 56,000 are aborigines. The North island is 500 m. long and of very irregular shape, varying in breadth from 5 to 300 m. The Middle island is 550 m. long, with an average breadth of 110 m. The South island is triangular in shape, and measures about 30 m. on each side. The North island contains 40,000 sq. m., the Middle island 60,000, and the South island 1,500; total area, 101,500 sq. m. The three islands in shape, like Italy, resemble a boot, the toe of which is toward the N.; and they are nearly equal in size to that peninsula, exclusive of the islands of Sicily and Sardinia.—The North island is separated from the Middle island by Cook's strait, which at its narrowest part is 18 m. wide; and the Middle is separated from the South island by Foveaux's strait, which is 15 m. wide. The coast line of the whole group is 3,120 m. in length, of which about one half belongs to the North island, whose shores abound in indentations. The best harbors of this island are in the northern district, between North Cape and Cape Colville, in which are found the magnificent ports of Mongonui, Wangarei, Auckland, and the Bay of Islands. South of Cape Colville, on the E. side, for the space of 200 m., there are only two safe anchorages, Mercury bay and Tauranga, the former of which does not admit large vessels. On the remainder of the E. coast, for a distance of 400 m., there is no safe harbor except the excellent one at Wellington at the S. end of the island. On the W. coast of the North island the principal harbors are Manukua, Kaipara, and Hokianga, which are spacious and secure, but obstructed by sand bars at the entrances. At the N. extremity of the Middle island are many extensive sounds and harbors with deep water; but along the whole of the E. coast, a distance of 500 m., the only ports are Akaroa, Victoria, and Otago. On the S. and S. W. sides of this island harbors are numerous and excellent; and higher up on the W. side is Jackson's bay, a safe anchorage. From Jackson's bay northward, a distance of 300 m., the rest of the W. coast of the Middle island is open and exposed. In the South island there are several safe harbors. The tide on the E. coast of the group rises to the average height of 8 feet, and on the W. coast 10 feet.—The centre of the North island is occupied by lofty mountains, which send off spurs in various directions to the sea coast, and are covered from their bases nearly to their summits with primeval forests. The highest mountain of the central range is Ruapahu, which is 9,000 feet high, and rises into the region of perpetual snow; one of its peaks, Tongariro, is an active volcano, 6,000 feet high. At the S. W. extremity of the island is Mt. Egmont, a volcano, 8,270 feet high; it is a perfect cone in shape, and always capped with snow. Three lines of volcanic craters with high cones stretch across the island, and in the centre of the great bay of Plenty on the N. coast is an active volcano called Wakavi or White island, which is 3 m. in circumference and 860 feet high. The Middle island is traversed by a mountain range which runs from the N. to the S. W. extremity, and in some places reaches an elevation of 13,000 feet, far beyond the snow line; its highest peak is called by the English Mt. Cook. The highest portion of this range is known as the Southern Alps. Toward both the E. and W. coasts this range is abrupt and precipitous. On the E. broad and fertile plains, and on the W. a narrow strip of land, lie between it and the sea. In the centre of the island are extensive table-lands. There are no volcanoes, active or extinct, in the Middle island. The South island is mountainous, but the highest summits do not exceed 3,000 feet in elevation.—The North island abounds in rivers and inlets of the sea, which give easy access to the most inland districts. The largest river is the Waikato, which rises in the Taupo lake near the centre of the island, and running N. 200 m. reaches the sea on the W. coast. Several rivers of considerable size flow from the central mountains of the Middle island across the great eastern plain to the sea. Like all the rivers of New Zealand, they are subject to great and sudden floods from the melting of the mountain snows. The interior of the North island abounds in lakes, one of which, Lake Taupo, is 30 m. long and 20 broad; another, Rotomahana, is in parts boiling hot. There are several extensive lakes in the centre of the Middle island, one of which, called Te Wai Pounama, is said to be of a green color and bordered by greenstone rocks.—In the North island the rocks are primary, metamorphic, volcanic, trappean, and sedimentary. The mountains are chiefly composed of lower slate rocks, intersected with basaltic veins, scoriæ, slate, primary sandstone, and limestone. The rocks contain sulphur, alum, manganese, obsidian, iron, copper, silver, and gold. In the limestone districts are extensive caverns formed by the action of water. Hot and cold springs, impregnated with sulphur, iron, and silicious matter, are found in every district. In the Middle island the lower rocks are clay and metamorphic schists, intersected by dikes of greenstone, with compact and amygdaloidal basalt. Granite has not been found. The plains are composed of clayey loam, and beds of coal and lignite are known to exist. Earthquakes are very frequent in New Zealand. At Nelson 55 shocks were registered between 1843 and 1854, and at Wellington there were 24 shocks in 1848. Cook's strait is the centre of the earthquake region. The shocks are not violent, and with slightly built houses are not much dreaded. Throughout the group there appears to be a gradual rising of the land, so that in Cook's strait rocks have appeared where none were visible when the country was first discovered, and at Port Nicholson the land has risen 5 feet since 1848. "New Zealand," says Dr. Thomson, "is an admirable geological school: there travellers may see the form of Vesuvius, the dome-shaped summits of Auvergne, the elevated craters of the Caracas, and the geysers of Iceland. Taupo, Tongariro, Rotomahana, Rotorua, and White island are almost unrivalled geological curiosities. Above the entombed village of Te Rapa, on the border of the Taupo lake, basaltic rocks may be seen in the process of conversion into soft clay by heat and chemical action; where the Tongariro river falls into the lake, travellers may observe how rapidly pumice stone and other deposits are lessening the size of this inland sea. Grand and beautiful geysers, ejecting water 2° above the boiling point of pure water, and holding various silicates in solution, are found around the lakes of Rotomahana and Rotorua. This water on cooling incrusts every substance it comes in contact with, and birds thrown into it are brought out like pieces of flint."—The flora of New Zealand is as remarkable as its geology. It is characterized by the comparatively large number of trees and ferns, the paucity of herbaceous plants, and the almost total want of annuals. There are 120 species of indigenous trees, and more than 2,000 species of plants have already been discovered, of which 507 species of flowering plants are peculiar to the country. The *coniferæ* are the most conspicuous natural order, although with comparatively few species. Almost all the trees of New Zealand are evergreens, and the change of seasons consequently makes little difference in the appearance of the forests. The most remarkable tree is the *kauri* pine, which is found only in the N. part of the North island. It grows to great size, often to a circumference of 40 feet, and rising to the height of 90 feet without a branch. From the lightness and toughness of the stem it is well adapted for masts, for which it is in great demand. It produces a gum which has been sold in England for $400 a ton; but the fresh gum is worthless, and only that is of value which is found buried in the earth on the site of ancient forests. The *totara* pine equals the *kauri* in size and commercial value; and the *puriri*, a tree of the same botanical order as the teak, rivals the English oak in hardness, and has a girth of 20 feet. One palm tree, the *areca sapida*, grows in New Zealand. The abundant fern roots of the country formerly supplied the aborigines with food, as did also the tender shoots of the palm. From the poisonous *tutu* berries they expressed a wholesome and refreshing drink. The trunks of the *kauri* and *totara* pines served for canoes, and the tough *ti* tree furnished paddles and spears. But the main reliance of the natives was on the flax plant, which was used for building and thatching huts, and of which they made sails, nets, fishing tackle, plates, ropes, baskets, medicine, and the chief part of their clothing.—Thirteen species of sea mammalia are found on the coasts, viz., 8 whales, 2 dolphins, and 3 seals. Dogs and rats were the only native quadrupeds when the islands were first visited by Europeans. The native rats have been nearly destroyed by the Norway rat, introduced by the English settlers; and the native dogs, which were formerly used for food, are now extinct, no care having been taken to preserve them after the introduction of the pig, which took their place on the tables of the natives. New Zealand has 83 species of birds, most of which have plumage of dull colors. Of the falcon family there are two species, one called *kahu*, about the size of a pigeon; the other, called *karewarewa*, is an active and daring sparrow hawk. There is only one species of owl, which the natives call *kou-kou* or *ru-ru*, while the settlers call it "more pork," because its cry resembles those words. One of the most celebrated birds among the natives is the *huia*, which has the color and is about the size of the blackbird. It has 4 long tail feathers tipped with white, which are worn by the natives as ornaments for the head. The *tui*, a dark-colored bird of the honey-sucker family, is called the parson by the Europeans from two snow-white feathers which hang under the chin like a clergyman's bands; it is also called the mocking bird from its powers of imitation. It is one of the most common birds in the country. Another honey-sucker, called *kokoromaka* by the natives and bell bird by the settlers, is about the size of a sparrow, with a long beak, and is a famous songster. There is one species of crow, a small, timid, and thievish bird. The parrot family is abundant, and has 5 species, 3 of which are small green birds with different colored heads. The *kaka* is a large brown parrot, great numbers of which assemble at sunrise and sunset on berry-bearing trees, uttering discordant screams, which among the natives serve as signals for the beginning and end of the day's labor. "The kaka has cried" is synonymous with "The cock has crowed," or "It is time to get up." The *kakapo*, or night parrot, is a very remarkable species, about the size of a common fowl. There is one species of pigeon, a large, stupid bird, very numerous and much used for food. The most peculiar birds of New Zealand are 3 species of the *struthionidæ* or runner family, which are called *kiwis* by the natives and *apteryx* by naturalists, the largest being about the size of a turkey, and the smallest 18 inches long. These wingless and tailless birds are nocturnal and burrowing in their habits, and have hair-like feathers and long beaks for searching out worms in mud and water. Allied to these strange creatures was the gigantic *dinornis*, now probably extinct, which reached the height of 14 or 16 feet. (See DINORNIS.) The natives called these monsters *moas*, and from their traditionary descriptions the bird seems to have resembled in shape and appearance a Cochin China fowl. It is thought by some of the settlers that specimens of these birds yet live in the interior of the Middle island, though none have been seen since 1650. There are no serpents in New Zealand, and toads and frogs were unknown to the natives, though since 1852 a few small specimens have been found by the English settlers. Six species of small and harmless lizards have been found, and are held in terror by the natives from a superstitious feeling that the spirits of their ancestors inhabit them. The bravest warrior, it is said, will tremble at the mention of their name, which is in the native tongue *ngarara*. More than 100 species of fish are found on the coasts, of which the largest peculiar to the islands is the *hapuku*, which is often caught exceeding 100 lbs. in weight. In the rivers and lakes eels are found weighing 50 lbs., and the lakes abound with *inanga*, a small, delicate fish, resembling the English whitebait. About 100 species of insects have been found, of which one half belong to the order *coleoptera*. Mosquitoes and sand flies are plentiful and troublesome in the North island in summer. Spiders are numerous, and two species are said to be poisonous.—The climate of New Zealand is universally described by those familiar with it as one of the finest in the world, and peculiarly adapted to the constitution and habits of the English race. The summer is longer and somewhat warmer than that of England, and the other seasons much milder, with many more fine days. The worst feature of the climate is the high winds which prevail in some districts, though in many parts the atmosphere is peculiarly serene. The coast climate is the most changeable and the most temperate in the world, the heat varying from 40° to 70°, and occasionally touching both extremes in 24 hours. The mean annual temperature of the North island is 57°, and that of the Middle island 52°. January and February are the warmest months of the year, and June and July the coldest. Snow seldom lies on the ground at the level of the sea, and ice is only occasionally seen in winter. There are neither wet nor dry seasons. A fortnight seldom passes without rain, and rain rarely continues for 8 successive days. The atmosphere is more moist than that of England, and fogs are frequent in the southern part of the group. There is not only sufficient sunshine, however, to ripen every English fruit, but figs, peaches, grapes, nectarines, melons, and maize thrive well in the open air. Spring begins in September, summer in December, autumn in April, and winter in June. The summer mornings are always cool and exhilarating, and the summer nights often singularly beautiful and mild. It is said that the Anglo-Saxon race can work and expose themselves to the climate of New Zealand without injury during more days in the year and for more hours in the day than in any other country. Dr. Thomson says that the remarkable salubrity of the climate "probably arises from the evenness of the temperature at all seasons, the constant agitation the wind produces in the atmosphere, and the circumstance that from whatever quarter the wind blows, it passes over a wide expanse of ocean; in addition to which the country contains few physical sources of disease."—New Zealand is inhabited by British settlers, and by an aboriginal race who call themselves the Maori, and who belong to the Malay division of mankind, and specifically to that portion of it which is found in the Sandwich, Navigators', Marquesas, and Society islands. They are a tall, stout people, the average height of the men being 5 feet 6½ inches, and their average weight 140 lbs. Their shape is peculiar, their bodies and arms being longer and their legs shorter than those of Englishmen of the same stature. The New Zealander's hair is generally coarse and black, though sometimes it is seen of a rusty red tinge. He has good teeth, a short and broad nose, large, dark brown eyes, large mouth, long upper lip, a broad face, a high, narrow, and retreating forehead, and a skin of an olive brown color, which in some is so fair that blushes can be seen, while in a few the skin is dark almost to blackness. The countenances of the New Zealanders are singularly grave and thoughtful, and do not often betray the emotions of the mind. The women are not so handsome as the men, though when young they are graceful and pleasing, with mild eyes, soft, sweet, pathetic voices, and great ease of manner. In that peculiar disfigurement of the human body known as tattooing the New Zealanders have outstripped all other people. Tattooing on the face they term *moko*, and on the body *whakairo*, the term tattoo, though of Polynesian origin, being unknown in their dialect. The male New Zealanders tattoo their faces, hips, and thighs; and the women tattoo their lips, chins, and eyelids, and occasionally draw a few lines on their bodies. The figures of the tattoo are alike among persons of the same tribe. The pigment used is charcoal made from kauri gum and from other vegetable substances. Under the skin the charcoal looks blue, and grows less dark in the course of years. The origin of tattooing seems to have been a desire to look fierce in battle; but since the introduction of firearms, by which fighting is carried on at a distance, this motive has ceased to operate, and tattooing is going out of fashion, though it is sometimes resorted to as a means of concealing the advance of years, for it makes the old look young. The heads of the New Zealanders are on an average smaller than those of Europeans, and their intellectual faculties inferior in the qualities that derive their cultivation from a knowledge of the past and of the wisdom of others. They are deficient in reason and judgment, have little imagination, and are seldom capable of generalizing. They, however, possess strong memories and quick perceptions, such as are commonly acquired by perpetual activity of the external organs of sense. Their fables, traditions, and songs show a good deal of wit and humor, qualities which are also often displayed in their conversation. They are fond of simple and noisy music, and have an accurate perception of musical time. They comprehend pictures with difficulty, and do not understand the blending of colors; their language has no word for blue. In general it may be said that they have the minds of children and the passions of men. In character they are vain, proud, arrogant, and revengeful, hospitable to strangers, but not generally benevolent, affectionate to their friends and kindred, honest and observant of their promises. They are cheerful in disposition, and consider it disgraceful to give way to anger. In their habits they are dirty and indolent, but are less addicted to intoxication than most savages. When found by the Europeans they were divided into 18 nations, which were again subdivided into a number of tribes. Each tribe acknowledged a chief as its head, who in his turn regarded the chief of the nation as his lord. Each nation was divided into 6 classes: the *ariki*, or principal chief, who was also high priest; the *tana*, or family of the principal chief; the *rangatira*, or inferior chiefs; the *tutua*, or middle classes; the *ware*, or lower classes; and the *taurakareka*, or slaves. The succession of chiefs was hereditary, and they had both civil and ecclesiastical jurisdiction, but could do little without the sanction of the majority of the people. The peculiar institution of the *tapu* or taboo, with its superstitious observances, by which certain things or persons were made sacred for longer or shorter periods, was of much political value, and was freely used in governing and restraining the common people. The New Zealanders worshipped various gods, apparently personifications of natural objects and powers, to whom they addressed prayers and offered sacrifices. Their gods were spiritual and invisible, and they paid no worship to idols. Many of the gods were deified men, ancestral chiefs of the tribe or nation by whom they were worshipped. They believed in a future state of existence, and that there was an immortal spirit within their bodies. There were two distinct abodes for departed spirits, neither of which was a place of punishment, evil deeds being punished not in the next world but in this, by sickness and other personal misfortunes. They had no idea at all of the resurrection of the body. Their priests were supposed to be in communication with the gods, and to express their wishes and commands. Sorcerers were thought to possess great powers, and were held in peculiar dread. The moral code was adapted to various social conditions and circumstances. Among chiefs courage, liberality, command of temper, endurance of torture without complaint, revenge of injuries, and abstinence from insult to others, were regarded as virtues; obedience to their masters and respect for the taboo were the peculiar virtues of slaves; among married women fidelity to their husbands constituted virtue. A ceremony called *iriiri* or *rohi* was performed by the priests upon infants before they were a month old, and consisted of a species of baptism, sometimes by sprinkling, sometimes by immersion in a stream. When first visited by Europeans, the New Zealanders lived in fortified villages called *pahs*, which were built on peninsulas or on the tops of steep hills. Since the general introduction among them of Christianity, these forts have been abandoned, except a few that are conveniently situated, and the natives live in unguarded villages and farm houses. The different nations were almost constantly at war with each other, and civil wars between the tribes of a nation were not uncommon. These contests were carried on with ferocious barbarity; the defeated tribe was reduced to slavery, or killed and eaten, cannibalism being universal. Quarrels about land and about women were the usual causes of strife, but wars were not entered upon without a good deal of deliberation and attempts at conciliation and mediation. During war sea fights occasionally took place between fleets of canoes, these vessels for military purposes being made 80 feet long, 4 feet wide, and 4 feet deep, and propelled by 50 paddles on each side. The weapons used in war before the introduction of firearms were slings, javelins, long spears made of pine, hardened by fire and sharp at both ends, and clubs and tomahawks of greenstone or other hard stones. Bows and arrows they were acquainted with, but did not use in war. Of late years these weapons have all been laid aside, and firearms adopted. Wars among the aborigines in fact have nearly ceased, the cessation of slavery and of cannibalism having removed many of the inducements to strife. The last known instance of cannibalism was in 1843, and slavery has quietly died out under the influence of Christianity and the British government. Marriage among the New Zealanders was not connected with any religious ceremonies. Before marriage girls not betrothed in infancy were permitted to indulge in promiscuous intercourse if they pleased, and the more lovers they had the more valuable were they reckoned. Married women, however, were kept under strict restraint, and infidelity was punished severely, often with death. Polygamy was permitted, and men could divorce their wives simply by turning them out of doors. Since the introduction of Christianity a great change has taken place among the aborigines of New Zealand. They are now generally clothed like civilized men, and possess flocks, herds, furniture, houses, and cultivated lands. One half of the adult natives can read and write, and two thirds of them belong to Christian churches. It seems probable, however, that from various causes, especially from the introduction of new diseases, the New Zealanders have been diminishing in numbers for the last 30 years. The aboriginal population, formerly computed at 100,000, was found by an enumeration in 1858 to be little more than half that number.—The language of the New Zealanders is a dialect of the Polynesian tongue generally spoken by the brown races of the Pacific islands, and was derived originally from the Malay. The alphabet, as it has been reduced to writing by the English missionaries, consists of 14 letters: A, E, H, I, K, M, N, O, P, R, T, U, W, Ng. The language is characterized by the simplicity of its grammatical forms, and the absence of distinctions in gender; declension and conjugation are effected as in English by particles, and superlatives are made by reduplication. Among the priests a sacred language was in use, unintelligible to the common people, and containing many Sanscrit words. It is now nearly extinct. A considerable body of literature was preserved by tradition in the shape of fables, stories, proverbs, songs, and laments for the dead. Their poetry is mostly lyrical, and none of it is epic or dramatic. Each sentence is metrically arranged, but rhyme is not used. The prose stories are of great length, some of them requiring successive days for their narration. In style and spirit they resemble children's tales. Several collections of this literature have been made by Englishmen, among them *Ko nga moteatea me nga Hakirara O nga Maori*, "Poems, Traditions, and Chaunts of the Maories," by Sir George Grey, K.C.B. (Wellington, 1853).—The British colonists have divided New

Zealand into 7 provinces, of which 4 (Auckland, Taranaki, Wellington, and Hawke's Bay) are in the North island, and 3 (Nelson, Canterbury, and Otago) in the Middle island, the South island being also included in the province of Otago. The chief town and capital of Auckland, the most northerly province, is the city of the same name, which occupies a fine commercial position on a narrow isthmus between two deep gulfs, and is well built, with a population of 10,000. It has 2 semi-weekly and 2 weekly newspapers. It is the seat of government not only for its province but for the whole of New Zealand. The Bay of Islands, a small settlement on a fine harbor 50 or 60 m. N. of Auckland, is much resorted to by American whalers, and is the seat of a U. S. consulate. The capital of Taranaki is New Plymouth, on the W. coast near Mt. Egmont, in a region remarkable for salubrity, the beauty of its scenery, and the fertility of the soil. In 1859 the population was about 3,000. The capital of Wellington is a town of the same name on a beautiful bay opening into Cook's strait, and surrounded by scenery which has been compared to that of the bay of Naples; it is subject to frequent earthquakes; pop. in 1859, 8,000. Napier, a small village on the S. E. coast, is the seat of government for the province of Hawke's Bay. Nelson, the capital of the province of the same name, is on Blind bay at the N. end of the Middle island. It enjoys a more equable, serene, and dry climate than any other part of New Zealand, and has a population of 10,000 in its immediate vicinity. The capital of Canterbury is Christchurch, on the small river Avon on the E. side of the island; pop. 3,000. Dunedin on the S. E. coast is the capital of Otago, the most southern province; pop. 2,000. The colonists of New Zealand have been mostly of a class much superior in education, wealth, and social position to those of any other English colony. The imperial parliament in 1852 sanctioned a constitution for New Zealand, of which the main provisions are as follows. The 7 provinces possess distinct governments, consisting of a superintendent and provincial council elected for 4 years by a suffrage nearly universal. The government of the whole colony is vested in a governor appointed by the crown, and in a general assembly consisting of a legislative council and a house of representatives, the latter having 36 members elected for 5 years, and the former 15 members nominated for life by the governor. Both in the general and provincial administrations the principle of responsible government is carried out, and legislative majorities, as in England, create and turn out cabinets. The colonists of New Zealand are mostly employed in agriculture, and their exports consist of potatoes and other provisions and timber to Australia, and of wool, tallow, spars, flax, gums, and copper ore to England. The value of the exports in 1857 was £369,394, and of the imports £992,994. The revenue in 1857 was £248,257, and the total expenditure of the government £390,957. The British troops in the same year numbered about 1,800 men. The intercourse with the United States is confined to the visits of a few whalers, mostly to the Bay of Islands. Education has been liberally provided for, chiefly by the church organizations of the colony, and there are good schools in all the towns. In 1851 the number of persons belonging to Protestant denominations was 22,673, of whom 14,179 were of the church of England; and there were 3,478 Roman Catholics and 63 Jews. There are church of England bishops at Auckland, Wellington, Nelson, Whaiapu, and Christchurch, and a Roman Catholic bishop at Wellington. In 1858 there were 15 newspapers published in the colony, one of them in the native language, 4 semi-weekly, and the rest weekly.—The Maori, or aborigines of New Zealand, according to their own traditions, came originally from a place called Hawaiki, which the most recent investigators suppose to have been Savaii in the Navigators' islands. Their traditions still speak of Raratonga, Parima, and Manono, well known islands of that region. In consequence of civil war their ancestors to the number of 800 emigrated from Hawaiki in 20 large canoes about A. D. 1400, and after a voyage of 3,000 miles reached New Zealand, which they found uninhabited. The discovery of New Zealand by Europeans is claimed by the French, Spaniards, and Dutch. It is asserted that Binot Paulmier de Gonneville, a French navigator, visited the country in 1504, and that Juan Fernandez reached it from the W. coast of South America in 1576; but these visits are of doubtful occurrence. The Dutch navigator Tasman, with two ships from Batavia, anchored (Sept. 18, 1642) in a bay in the Middle island, next to that in which the town of Nelson now stands. He had an encounter with the natives, in which he lost 4 men, and departed without having landed, calling the place Massacre bay, and naming the country New Zealand. A century later Capt. Cook, during his voyage to the southern hemisphere to observe the transit of Venus, landed at Turanga in the province of Auckland in 1769, and took possession of the country for the crown of England. Three years later a French navigator, Marion du Fresne, arrived with two ships in the Bay of Islands, and after a month's friendly intercourse with the natives offended them by violating the taboo and putting some of their chiefs in irons, and was accordingly attacked and killed with 25 of his men. Capt. Cook subsequently visited New Zealand 4 times, and introduced pigs, potatoes, and other useful animals and vegetables. A few years later English and American whalers began to frequent the coast, and a number of runaway sailors took up their abode among the people and married native women. European visitors were generally treated with kindness, though in 1809, the captain of the English ship Boyd having flogged and otherwise ill-treated a chief at Wangaroa, his tribe in revenge massacred the crew and passengers of the ship to the number of 70. In 1820 Honga Hika, the most distinguished of New Zealand chiefs, visited England, where he was received with attention by George IV. and loaded with presents, with which he returned to his own country, where he speedily introduced among his people the elements of civilization and Christianity; for though he did not become a Christian himself, he intrusted his children to be educated by the missionaries, who had first visited New Zealand in 1814, under the lead of the Rev. Samuel Marsden, and whom he always protected and encouraged. In 1833 the British government appointed a resident at New Zealand, and in 1838 Capt. Hobson was sent to the islands as lieutenant-governor, the European population at that time exceeding 1,000 persons, and the number of vessels, chiefly whalers, entering the Bay of Islands in that year amounting to 130. The number of converts made by the missionaries was at this time about 4,000. In the following year the New Zealand company was chartered in England with a capital of £500,000, the earl of Durham, Francis Baring, and other eminent statesmen and merchants being at its head; and systematic colonization was commenced by a settlement at Port Nicholson on Cook's strait. In 1844 a serious war broke out with the natives, in which the town of Kororareka, an English settlement, was destroyed, and the English troops repeatedly defeated. Peace was restored in 1848, and shortly afterward a severe earthquake shook a large portion of New Zealand, doing much damage and causing great alarm. In 1850 Canterbury province was settled on church of England and aristocratic principles, a bishop, priests, lords, baronets, and gentlemen of all the professions being among the early settlers. Two years before the province of Otago had been settled exclusively by members of the Free church of Scotland. These colonies are however now composed of persons of every variety of Christian faith. In 1855 a second war with the natives broke out in Taranaki province, about land claims, which ended in 1857. In the present year (1860) a third war originating from the same cause exists in the same province.—See "The Story of New Zealand," by Arthur S. Thomson, M.D. (2 vols., London, 1859).

NEWARK, a city of New Jersey, and the capital of Essex co., situated on the W. bank of Passaic river, about 9 m. W. from New York, and 49 m. N. E. from Trenton, the capital of the state, in lat. 40° 44′ N., long. 74° 10′ W.; pop. in 1810, 6,000; in 1830, 10,995; in 1840, 17,290; in 1850, 38,894; in 1860, 72,179. The area of the town proper embraces between 4 and 5 sq. m., although the corporate limits comprise much more territory. The main street, called Broad street, is a very spacious and handsome avenue, 132 feet wide and 2¼ miles long, shaded with majestic elms, adorned with numerous tasteful edifices, and skirting in its course three parks. The central park, which the settlers laid out for a "training place," is completely embowered with towering elms, and is surrounded by the mansions of many of the wealthy inhabitants. The other streets of the town are generally wide and airy. The city has largely extended itself in every direction within the last 25 years. That portion through which the New Jersey railroad now passes was a swampy uninhabitable marsh when the road was laid out in 1832; but it is now the seat of numerous manufacturing establishments. Beside the churches, the most noteworthy structures are the custom house and post office, erected by the general government, the mutual benefit life insurance building, the Newark banking company, savings institution, and mechanics' bank, all of freestone of elaborate workmanship. The city is supplied with water collected from a large number of springs on the neighboring high grounds into a reservoir, and thence distributed by pipes. It is also supplied with gas, and has a system of sewerage. There are several cemeteries in the vicinity, the oldest of which is Mount Pleasant cemetery. It occupies 40 acres of land about 2 m. N. of the city, extending from the rolling bank of the Passaic to the Belleville road, and it is elegantly laid out in winding avenues thickly shaded by ornamental trees and flowering shrubbery. The number of churches is 58, of which 5 are Baptist, 6 Episcopal, 12 German of various denominations, 12 Methodist, 14 Presbyterian, 3 Reformed Dutch, 4 Roman Catholic, and 2 Universalist. The oldest edifice is the first Presbyterian church, which was opened in 1791; the 2d church was erected in 1808, the 3d in 1824, and the 4th in 1831. In 1801 the first Baptist society was constituted, in 1806 the first Methodist, in 1834 the first Reformed Dutch, and in 1824 the first Roman Catholic. Newark has since become the see of a Roman Catholic bishop. The public school system has been brought to a high degree of excellence, and affords the means of a liberal education to all the children of the city, free of expense. Evening schools are also provided for adults. The board of education is composed of two commissioners from each ward, chosen by the people, and they appoint a general superintendent of schools. There is a high school, comprising a male and a female department, the pupils of which are admitted on account of superior proficiency in the lower schools, of which there are about 40. The whole number of pupils registered in 1859 was 9,583. The expense of the system was about $64,000, of which the city raised by tax $58,000, the remainder being received from the state fund, and the interest on bequests. The cost of tuition averages $7.22 for each scholar; and the average pay of teachers is $858.76 per annum.—The municipal government is lodged in the mayor and common council, with independent boards of education, excise, streets, and aqueduct, all elected by the people. The mayor holds his office for 2 years. The city is divided into 12 wards, each of which is represented in the common council by 2 aldermen, who hold their offices for 2 years. The fire department comprises 618 men, who are paid $30 a year each; they are under the direct supervision of a chief engineer, with 4 assistants, who are appointed by the common council. There are 2 fire wardens for each ward, who inspect buildings and perform other duties requisite for security. The apparatus consists of 12 hand engines, 2 steam fire engines, 2 hook and ladder trucks, 2 hose carriages, and 13,000 feet of hose. The expenses of the department in 1860 amounted to $44,988. There are 40 public cisterns and 72 hydrants distributed about the city, to supply water for the extinguishment of fires. The police department, of which the mayor is the head, consists of a chief of police, a captain, 2 lieutenants, and 93 policemen, who are all appointed by the common council; the salary of the chief is $900, of the captain $700, of the lieutenants $600 each, and of the privates $550 each. The alms department is under the supervision of an overseer of the poor, with a superintendent of the almshouse, an almshouse physician, and other subordinate officers. There are two private orphan asylums, supported by voluntary contribution of the citizens. The sanitary provisions are under the management of a board of health, composed of the mayor, the committee of the council on public health, and the health physician, who is appointed by the common council, and receives no compensation. There is also a health inspector. The city is divided into 6 districts, with a physician in each, for the care of the indigent sick. There is also a city dispensary for the supply of medicines to such persons.—Newark has a considerable commercial business. There are 5 banks with an aggregate capital of $2,108,650; 2 savings institutions; 8 fire and marine insurance companies; and 1 life insurance company, having an issue of over 7,500 policies, averaging about $3,500 each, and a fund of nearly $4,000,000. The real and personal property of the place is estimated at $31,500,000. Ample means of communication with the surrounding country and with other cities are enjoyed. Thirty-two trains of cars on the New Jersey railroad run to and from New York daily, making Newark almost a suburb of that metropolis; and an independent railroad between the two places is in course of construction. Six trains daily each way connect it with Philadelphia and the South. By the Morris and Essex railroad it is directly connected with the N. W. part of the state, and by the New Jersey central railroad with Somerville and Easton. The Morris canal brings the coal of Lehigh valley through the heart of the town. Various plank roads and turnpikes extend out into the surrounding country; and the Passaic river furnishes an avenue for immense quantities of coarse and heavy freight.—Almost every branch of mechanical industry is pursued in Newark. The following table of manufactures is from the census of 1860:

Manufactures.	No. of establishments.	Value.
Leather	18	[illegible]
Patent leather	11	[illegible]
Patent or enamelled cloth	7	961,630
Saddles and harness	17	1,814,150
Saddlery hardware, collars, whips, &c.	15	[illegible]
Trunks and carpet bags	9	[illegible]
Trunk rivets, frames, bands, &c.	5	[illegible]
Carriages and wagons	27	[illegible]
Spokes, rims, wheels, hubs, axles, &c.	24	[illegible]
Plated ware for carriages, harness, and saddles	22	[illegible]
Shoes	55	[illegible]
Skates	1	5,000
Straps, bands, and belting	3	[illegible]
Hats	21	[illegible]
Straw hats and millinery	3	[illegible]
Hat blocks, tips, blowing fur, &c.	5	[illegible]
Clothing	41	[illegible]
Shirts, hosiery, cloth, and silk	10	[illegible]
India rubber goods	2	[illegible]
Table covers	1	[illegible]
Jewelry	24	[illegible]
Jewellers' tools, britannia and Japan ware	7	[illegible]
Iron, brass, and malleable iron	18	[illegible]
Machinery	18	[illegible]
Tools, pipes, gas fittings, tin ware, shears, cutlery, locks, railings, &c.	61	[illegible]
Building and builders' materials	52	[illegible]
Furniture, &c.	9	[illegible]
Mattresses, hangings, needles, buttons, brushes, type metal, &c., including 9 printing establishments	67	[illegible]
Lime and cement, chemicals, varnish, glue, lampblack, zinc paint, &c.	16	[illegible]
Ale and lager beer	16	[illegible]
Bread, &c.	13	[illegible]
Miscellaneous	44	[illegible]
Total	547	[illegible]

—Newark was settled in May, 1666, by about 3 families from Milford and New Haven, Conn., under the lead of Capt. Robert Treat, afterward governor of that colony, to which he returned at a later period. In 1667 they were joined by about an equal number of settlers from Guilford and Branford, Conn., under the lead of the Rev. Abraham Pierson, their minister, who, having in early life preached in Newark, England, gave that name to the new town. Their object seems to have been to establish a Puritan community, to be administered under the laws of God, by members of the church, on strictly democratic principles. They left Connecticut because the colony of New Haven, to which they belonged, had been united to the Connecticut colony of Hartford, a union which interfered with their independence. The proprietors of New Jersey had just issued their liberal proposals to settlers, known as "the grants and concessions;" and Treat and Pierson, with their associates, having obtained from Philip Carteret, the proprietary governor, a license to purchase land, paid to the Indians for the tract which now constitutes Newark, Clinton, Orange, Bloomfield, and Belleville, £130 New England currency, 12 Indian blankets, and 12 Indian guns. The settlers laid out the town plat of Newark, with its spacious streets and parks as they now exist. A homestead lot of 6 acres was assigned to each settler or head of a family, with out lands and meadow for agricultural purposes, farming having for several generations constituted the main pursuit of the inhabitants. They passed a law that none should become freemen or free burgesses of the town, or vote at its elections, or be chosen to the magistracy, or to any chief military trust or office, but such planters as were members of the Congregational churches; though all others admitted to be planters should have right to their inheritances and all other civil rights and privileges. Their first care was to build a meeting house, and in 1676 a school was established. In 1678 the Rev. Abraham Pierson died, and was succeeded in the pastoral office by his son of the same name, who subsequently removed to Connecticut, and on the establishment of Yale college in 1701 became its first president. In 1736 the Rev. Aaron Burr (whose son, the vice-president of the United States, was subsequently born here) commenced his ministry, and in 1748 became president of the college of New Jersey, which was situated in this town for 8 years; in 1756 it was removed to Princeton. A small commerce was soon created, which constantly increased. Newark cider acquired an early celebrity, which is not yet forgotten. Quarries of brown stone were worked here for market as early as 1721; and the stone was sent before the revolution even as far as the West Indies. Shoes and carriages were manufactured in considerable quantities several years before the commencement of the present century. The population, which in 1688 was 100 families, is said to have amounted to only 1,000 souls in the revolutionary war, doubtless owing in good measure to the troubles of that period. During the revolution, the town was successively occupied by the American and British troops, and was subject to occasional incursions from New York. Upon the establishment of peace, however, it received a new impulse, and soon became very prosperous. The present academy was established in 1792, the brick edifice, which formerly occupied the site of the new post office, having been built in that year. In 1794 the bridges over the Passaic and Hackensack were erected, and communication with New York, which had previously been carried on by means of ferries, was opened over the present causeway or turnpike between Newark and Jersey City. In 1804 the first bank was established, with a capital of $400,000, and in 1812 a second bank was instituted. The Morris canal, which connects Newark with Easton, Penn., and the Lehigh valley, was completed in 1832; the New Jersey railroad, between Newark and Jersey City, was opened in 1834. In 1834 Newark was made a port of entry, and in 1836 it was incorporated as a city.

NEWARK, the capital of Licking co., Ohio, situated at the confluence of 3 branches of the Licking river, and on the Ohio canal, 33 m. E. by N. from Columbus, and 24 m. W. by N. from Zanesville; pop. in 1850, 3,654; in 1860, estimated at 6,000. In the vicinity are quarries of sandstone and an extensive coal mine, and a number of coal oil factories. In 1859 the town contained 8 churches (1 Baptist, 1 Episcopal, 1 Lutheran, 2 Methodist, 2 Presbyterian, and 1 Roman Catholic), a bank, a private banking house, 3 newspaper offices, and several factories. It is on the line of the central Ohio railroad, and is the terminus of the Sandusky, Mansfield, and Newark railroad.

NEWAYGO, a W. co. of Mich., intersected by the Maskego river and drained by Notipeskago, White, Marquette, and other streams; area, about 800 sq. m.; pop. in 1850, 510. The soil is fertile. The productions in 1850 were 7,200 bushels of Indian corn, 2,230 of potatoes, and 122 tons of hay. Capital, Newaygo.

NEWBERN, a port of entry and capital of Craven co., N. C., on the S. W. bank of the Neuse at its confluence with the Trent, 30 m. from its mouth in Pamlico sound, and 120 m. S. E. from Raleigh; pop. in 1850, 4,800. The Neuse, which is here over a mile wide, is navigable for 8 months in the year. Ocracoke inlet affords communication with the sea. The port has considerable commerce, principally domestic, and exports large quantities of grain, lumber, tar, turpentine, and naval stores. Its foreign exports for the year ending June 30, 1859, amounted to $11,811, and its imports to $13,878. This trade is confined to the West Indies. The aggregate tonnage of the district at that date was 3,446. The town contains several flour and saw mills, a theatre, 2 banks, and a number of churches. It was at one time the capital of the province of North Carolina.

NEWBERRY, a central district of S. C., bordered N. E. by Broad and S. by Saluda rivers, and drained by Ennoree and Little rivers; area, about 600 sq. m.; pop. in 1850, 20,143, of whom 12,688 were slaves; white pop. in 1859, 7,021. It has an undulating surface and a fertile soil, especially near the streams. The productions in 1850 were 664,058 bushels of Indian corn, 79,575 of wheat, 99,798 of oats, 79,182 of sweet potatoes, and 19,894 bales of cotton. There were 10 grist mills, 5 saw mills, 4 tanneries, 39 churches, and 1,181 pupils attending public schools. The Greenville and Columbia railroad passes through the capital, Newberry, which is also connected with Laurensville by the Laurens railroad.

NEWBURG, a township and village and semi-capital of Orange co., N. Y., on the W. bank of the Hudson river, 61 m. N. from New York and 84 m. S. from Albany; pop. of the township in 1860, 15,400; of the village, about 11,000. The village is situated on a steep slope rising from the river to a height of 150 feet. It contains a court house, and a number of manufacturing establishments, among which are 5 founderies; a cotton manufactory, employing 325 hands, and turning out goods to the annual amount of $200,000; an extensive brewery, a car factory, 2 pianoforte factories, 5 soap factories, boiler works, and 2 other manufactories; and owns shipping to the amount of about 4,000 tons. Its receipts of lumber by railroad in 1858 amounted to 21,000,000 feet, and 20,000 bunches of shingles. There are 23 churches (8 Episcopal, 4 Presbyterian, 2 Reformed Presbyterian, 1 United Presbyterian, 1 Reformed Dutch, 7 Methodist, 8 Baptist, 1 Roman Catholic, and 1 Universalist), 5 banks, and several private schools and academies. Water is supplied to the village from Little pond, 3 m. distant, the works for which cost $96,000. "Washington's Head-Quarters," an old stone mansion overlooking the Hudson, is owned and kept in order by the state. Beside its association with the revolutionary war and its great chief, the building contains numerous interesting relics of that period. A ferry connects the village with Fishkill Landing, a station on the Hudson river railroad, on the opposite side of the river; and it is connected by the Newburg branch with the New York and Erie railroad.

NEWBURYPORT, a city and port of entry, and one of the shire towns of Essex co., Mass., situated on the right bank of the Merrimack river, 3 m. from its mouth, and 34 m. N. by E. from Boston, in lat. 42° 48′ 30″ N., long. 70° 52′ 3″ W.; pop. in 1860, 13,406. The eastern railroad passes through it, and it is also connected with Boston and the interior by the Newburyport railroad. It is situated on a swell of land rising gradually to the height of 100 feet from the river, and commands a fine view of the ocean and the surrounding country. The streets are laid out regularly, and finely shaded with trees; and High street, the principal thoroughfare, extending for 3 m. parallel to the river, and about a quarter of a mile from it, is regarded as one of the most beautiful streets in New England. In the centre of the city is a fine mall, extending around a beautiful pond of 6 acres. Near the city is Oak Hill cemetery. The principal public buildings are the custom house, city hall, court house, and 16 churches, some of them of admirable architecture. Under the Federal street church are the remains of the Rev. George Whitefield, who died here in 1770. The same church contains a whispering gallery, where a slight whisper can be heard 115 feet. There are 8 banks of discount with an aggregate capital of $650,000, and 2 savings banks with deposits to the amount of $1,800,000. The city has 4 manufacturing corporations with an aggregate capital of $1,080,000, employing 1,400 hands, running 67,000 spindles, and manufacturing 10,000,000 yards of cotton cloth annually. There are also manufactories of machinery, castings, hats, leather, combs, jewelry, shoes, cordage, &c. Ship building forms a prominent business of the place. Vessels were built here as early as 1680, and in 1766 there were 72 vessels on the stocks at one time. In 1854, 20,000 tons of shipping of different kinds were built, the vessels varying from 100 to 1,600 tons, and employing 1,000 men. Since that time the business has been depressed there as elsewhere. The harbor is formed by the position of Plum island along the mouth of the river, and is safe and commodious. The channel, however, is shifting and shallow from the accumulation of sand, which has always proved a serious inconvenience. The commerce of the port for the year ending June 30, 1859, was as follows: vessels entered, 66, tonnage 5,845; vessels cleared, 78, tonnage 8,187; value of imports, $30,055; of exports, $98,417. The registered shipping of the port at the above date was 22,913 tons; enrolled and licensed, 6,940; total, 29,853. Two newspapers are published, a daily and a weekly. The former, the "Newburyport Herald," has been established 75 years. Its first proprietor and printer was Edmund Blunt, author of the "Coast Pilot," and the first press used was purchased of Benjamin Franklin for $40. The public schools of Newburyport have for a long time occupied a high rank. The female high school was the first of the kind established in the country. The Putnam free school, supported by a fund of $50,000, is a school of the higher grade, open to all without regard to residence. A free library, founded in 1856 by a donation of the Hon. Josiah Little, contains upward of 10,000 volumes, and is constantly increasing. —Newburyport was settled about 1635, but until 1764 formed a part of Newbury. It was distinguished for its patriotic spirit during the revolution. The first tea destroyed was in this town, having been taken from a powder house, where it had been deposited for safe keeping, and burned by the citizens in the public square. The expedition to Quebec sailed from this port for the Kennebec. The first privateer fitted out in the United States was from this port, and the first volunteer company to join the continental army was here formed in response to an appeal of the clergy. On May 31, 1811, a great fire destroyed a large portion of the town and over $1,000,000 worth of property. In the war of 1812 Newburyport was particularly distinguished for the bravery and success of its privateers. In 1851 a portion of Newbury was annexed to the town, and on May 24 of the same year a city charter was obtained. The first mayor of the city was the Hon. Caleb Cushing. Newburyport was the residence of Chief Justice Parsons, Jacob Perkins, Judge Jackson, and other eminent persons. Many distinguished families of the United States originated from this town; and among its transient visitors and residents have been many foreigners of distinction, as Talleyrand and others. The home of the eccentric Timothy Dexter still forms one of the curious localities of the place. Prominent among the clergy of Newburyport for the last 50 years, until his death in 1859, was the Rev. Dr. Dana, once president of Dartmouth college.

NEWCASTLE, WILLIAM CAVENDISH, duke of, a royalist general in the civil wars of England, born in 1592, died in 1676. He was the nephew of William Cavendish, founder of the ducal house of Devonshire, and succeeding in 1617, upon the death of his father, to large estates, devoted himself principally to poetry, music, and other elegant accomplishments. In 1620 he was raised to the peerage as Baron Ogle and Viscount Mansfield, and in 1628 was created earl of Newcastle-upon-Tyne. At the outbreak of the civil wars he sided with the king, to whose treasury he contributed £10,-000, and took the field at the head of a body of 200 cavaliers. He was intrusted by the king with the command of the 4 northern counties, and raising in a short time an army of 10,000 men, he succeeded by a series of vigorous movements in prostrating the power of the parliament in that part of England. His most memorable achievement was the total defeat of Sir Thomas Fairfax at Atherton Moor, June 30, 1643. For these services he was in November of the same year created marquis of Newcastle. Subsequently he held the Scots in check at Durham, but was obliged in April, 1644, in consequence of the defeat of Col. Bellasis at Selby, to throw himself with all his forces into York, where for the next 3 months he sustained an investment by a greatly superior army under Fairfax. Upon the advance of the royal army under Rupert to his relief, he joined the latter with the greater part of the garrison, and endeavored to persuade him that, having accomplished the raising of the siege, he had better defer a general engagement until the arrival of the expected reënforcements. His advice was disregarded, and the fatal battle of Marston Moor was fought, which ruined the royal cause in the north. The marquis behaved with determined gallantry in this engagement, and his regiment, composed of his old tenants and retainers, distinguished by their white coats, forming a circle, poured repeated volleys into the ranks of the enemy, until, "their ammunition being spent, an opening was made, and the white-coats perished, every man falling on the spot on which he had fought." He forced his way with a few followers to Scarborough, and, weary of a charge which ill suited his elegant and studious habits, set sail for the continent, and established himself in Antwerp. His estates having been sequestrated by parliament in 1652, he lived in extreme poverty during the protectorate; but upon the restoration he became the recipient of various substantial honors, and in March, 1664, was created earl of Ogle and duke of Newcastle. Clarendon says he was "a very fine gentleman, active and full of courage," as also "amorous in poetry and music, to which he indulged the greater part of his time." He was the author of "A New Method to Dress Horses" (published in French at Antwerp in 1658, and afterward in English, with alterations, at London in 1667), and of several comedies. His duchess, the eccentric Margaret of Newcastle, to whom he was married in 1645, has sketched his character and career in her "Life of the thrice Noble, High, and Puissant Prince William Cavendishe, Duke, Marquis, and Earl of Newcastle" (fol., London, 1667).—**Margaret Cavendish**, duchess of, second wife of the preceding, an English authoress, born at St. Johns, near Colchester, Essex, about the end of the reign of James I., died in 1673. She was the youngest daughter of Thomas Lucas, who died early, leaving the instruction of the children to their mother; although in Margaret's case not much education would seem to have been necessary, as she herself informs us that "it pleased God to command his servant nature to indue her with a poetical and philosophical genius even from her birth, for she did write some books even in that kind before she was 12 years of age." Joining the court at Oxford in 1643, she was appointed a maid of honor to Queen Henrietta Maria, and accompanied her to Paris, where she met the marquis of Newcastle. After their marriage in 1645 they removed to Rotterdam, and subsequently to Antwerp, where they lived for a time in such extreme destitution that they were once compelled to pawn their clothes. At the restoration they returned to England, and in 1664 the marquis was created a duke. The remainder of their lives they spent in retirement, perpetrating an unlimited amount of bad prose and worse poetry. Both in conversation and in print, each spoke of the other as the greatest genius in the world, the duke, among other things, being likened by his consort to Julius Cæsar. While in Antwerp he had published in 1658 his work on horsemanship, and had composed at the instigation of his wife some comedies, and also wrote, as we are carefully informed, the more licentious passages in hers. She, however, was much the more voluminous author of the two, nothing being too high or too low for her to attempt; and as she never revised her works "lest it should disturb her following thoughts," she was enabled to produce 13 folios, 10 of which are in print. Walpole, in his "Catalogue of Royal and Noble Authors," reports that she kept a servant who slept on a truckle-bed in her room, and when during the night she felt inspiration, she would cry out: "John, I conceive;" whereupon he would arise and commit to paper what she dictated. The best known of her works are her two volumes of plays, in which the absurdity of the matter is only rivalled by the disregard of grammar, for which, indeed, she expresses the most profound contempt in several of her numerous prefaces and "Addresses to the Reader." Yet during her lifetime she was made the subject of the most fulsome panegyric by eminent men and learned societies. She was buried in Westminster abbey. Her works are much sought after on account of their rarity and absurdity.

NEWCASTLE, or **Newcastle-under-Lyme, Thomas Holles Pelham**, duke of, an English statesman, born July 21, 1694, died in 1768. He was the son and successor of Thomas Pelham, first Baron Pelham, and in 1711 came into possession of the large estates of his maternal uncle, John Holles, duke of Newcastle, whose title expired with him. In 1714 he was created Viscount Haughton and earl of Clare, and in the succeeding year marquis of Clare and duke of Newcastle-upon-Tyne, with remainder, failing his issue male, to his brother. He entered political life as a whig and a supporter of the house of Hanover, in whose interests he raised a troop of horse to put down the Jacobites. Rewarded for his loyalty by admission into Walpole's ministry as secretary of state, he succeeded by industry, influential connections, and lavish expenditure of money, and also by the assistance of his brother Henry Pelham, in making himself feared and respected by those who despised his abilities, which were beneath mediocrity. He remained in office during the administration of Henry Pelham, and in his pride of power so irritated George II. that the latter complained that he could not appoint even a page of the back stairs, while there were so many of the Newcastle footmen about him. In 1746 the Pelham brothers, apprehensive that the king was endeavoring to bring Lord Granville into power, suddenly resigned office with all their colleagues. An abortive attempt was made to form a new ministry, and at the end of 40 hours the old cabinet was recalled, the king complaining bitterly that a man like Newcastle, who was not fit, he said, to be chamberlain to a petty court in Germany, should be forced on him and the nation as a minister. Upon the death of Henry Pelham in 1754, the duke succeeded to the premiership, but resigned in 1756 from inability to reconcile the discordant elements in his cabinet. In 1757 he was reinstated in office, with Pitt and Henry Fox as his chief supporters in the ministry, but was so overshadowed by the greatness of the first of these that he sank into insignificance and retired in disgust in May, 1762. In Nov. 1756, he was created duke of Newcastle-under-Lyme, with special remainder to Henry Fiennes Clinton, 9th earl of Lincoln, who had married his niece, and who inherited the title in 1768. His administrative incompetency, and the long period (amounting to nearly 40 years) that he held office, are among the anomalies of British political history. "No man," says Macaulay, "was ever so unmercifully satirized. But in truth he was himself a satire already made. All that the art of the satirist does for other ridiculous men nature had done for him. Whatever was absurd about him stood out with grotesque prominence from the rest of the character. He was a living, moving, talking caricature. His gait was a shuffling trot; his utterance a rapid stutter; he was always in a hurry; he was never in time; he abounded in fulsome caresses and in hysterical tears. His oratory resembles that of Justice Shallow. It was nonsense effervescent with animal spirits and impertinence." "He was greedy after power with a greediness all his own. He was jealous of all his colleagues, and even of his own brother. Under the disguise of levity he was false beyond all example of political falsehood. All the able men of his time ridiculed him as a dunce, a driveller, a child who never knew his own mind for an hour together, and he overreached them all round." A similar estimate of his character was entertained by contemporary and subsequent writers. Sir Robert Walpole, against whom he had intrigued, declared that "his name was perfidy;" and Horace Walpole has in his correspondence painted him in the blackest colors.—**Henry Pelham Fiennes Pelham Clinton**, duke of, a British statesman, born in London, May 22, 1811. He was educated at Eton, where he was contemporary with Mr. Gladstone and Mr. Charles Kean, and at Christchurch, Oxford. In 1832, as Lord Lincoln, he was returned to the house of commons for the family borough of Newark, and at once attached himself to the conservative party, of which his father was a member, of the most extreme tory school of opinion. Subsequently he was returned for South Notts, in which shire his family have large possessions. On Sir Robert Peel's being called from Italy in 1834 to form an administration, Lord Lincoln was appointed to a lordship of the treasury, and held that office during the few months Sir Robert Peel retained the reins of power. In the interval between this and Peel's return to power in 1841, Lord Lincoln was a prominent and active member of the opposition party, and was rewarded by the appointment, on the construction of Peel's government, of the office of chief commissioner of woods and forests, a position which he filled with considerable credit down to 1846. A large portion of the conservative party having in that year, under the lead of Lord Stanley and Lord George Bentinck, seceded from Peel's standard, in consequence of his change of views on the corn law question, Lord Lincoln adhered to his chief, and, in order to give him the strength which the approving fiat of a large agricultural constituency like South Notts would afford, exchanged his position of commissioner of woods and forests for the somewhat inferior one of chief secretary for Ireland, which involved a new election. He was defeated in South Notts in consequence of his father, who disapproved of the step he had taken, using all his influence against him, and compelled to fall back for a seat on the Falkirk district of burghs, which was in the gift of his father-in-law, the duke of Hamilton. He retired from office with Sir Robert Peel in the autumn of 1846, but retained his seat; and up to the period of his elevation to the house of lords (Jan. 12, 1851), as one of the leaders of the small but brilliant band of Peelites he exercised considerable influence, more by the weight of his character and his untiring industry and conscientious sense of duty, than by any readiness in debate. At the close of 1852 he became secretary of state for the colonies in the Aberdeen ministry, in which capacity the functions of minister of war devolved upon him. Shortly after the outbreak of the Crimean war the colonial department was separated from that of war; and the duke, choosing the latter, received in 1855 a share of the blame which was thrown upon the administration on account of the misconduct of that war, and resigned his office after defending himself in the house of lords with great spirit. He afterward visited the Crimea, and was there at the capture of Sebastopol. In 1859 he became a member of Lord Palmerston's administration as colonial secretary, and in 1860 was selected by the queen to accompany the prince of Wales on his visit to Canada and the United States.—He is said to have been the model of Disraeli's "Coningsby." He married in 1832 the only daughter of the late duke of Hamilton, a faithless wife, from whom he was divorced in 1850. She bore him many children, the eldest of whom, Henry Pelham Alexander, earl of Lincoln, was born Jan. 25, 1834.

NEWCASTLE-UNDER-LYME, a municipal and parliamentary borough and market town of Staffordshire, England, near the right bank of the Trent, 150 m. N. W. from London; pop. in 1851, 10,569. It is well built, paved, and lighted with gas. The principal public edifices are the churches, town hall, literary and scientific institute, theatre, free grammar school (founded in 1602), and a range of almshouses for 20 poor females. It has manufactories of silks, cotton, earthenware, &c.; coal and iron are mined in the vicinity. The borough returns two members to parliament.

NEWCASTLE-UPON-TYNE (anc. *Pons Ælii*, afterward *Monkchester*), a city and river port of England, capital of Northumberland, and a county in itself, situated on the left bank of the Tyne, 8 m. from its mouth in the German ocean, and 303 m. by railway N. N. W. from London; lat. 54° 58′ N., long. 1° 35′ W.; pop. in 1851, 87,784. It is built on 3 steep hills, and extends about 2 m. along the river, communicating with Gateshead on the opposite bank by a handsome stone bridge. A few remains of its ancient fortifications are yet standing. The streets, except in the old quarters, are spacious, well paved, and lighted with gas, and many of the houses and public buildings are remarkably elegant. The churches of All Saints, St. John, St. Peter, St. Nicholas, St. Thomas, and St. Andrew, and the magnificent Roman Catholic church of St. Mary, the guildhall, corn exchange, new town hall, merchants' court, gaol, court house, house of correction, barracks, and central railway station are particularly deserving of notice. A large semicircular Ionic building is occupied by the central exchange and news room. A handsome edifice was erected in 1859 for public baths and wash houses. The "high level bridge" across the Tyne, built by Robert Stephenson at a cost of more than £234,000, is supported by 6 massive piers 124 feet apart, and has a carriage way 90 feet above the river, and over that a railway viaduct at a height of 118 feet from the water. There are many hospitals, asylums for the deaf and dumb, and blind, learned and scientific societies, and schools. The museum of the antiquarian society has the largest collection in England of Roman lapidary inscriptions and sculptures. The old castle, built in 1080 by Robert, eldest son of William the Conqueror, is one of the finest specimens of castellated Norman architecture in the kingdom. A theatre, a music hall, and assembly rooms are the principal places of amusement. The chief manufactures are glass of all kinds, iron ware, locomotives, paper, copperas, coal pitch, spirits of tar, varnish, soda, whiting, glue, vinegar, and soap. The Armstrong gun works, erected in 1859, cover an area of 11 acres, and give employment to from 1,200 to 2,000 men. Connected with them are shot, shell, and fuze factories, and a mechanics' literary institution for the benefit of the workmen. Ship building is prosecuted on a large scale, and the construction of iron steamships has lately become a prominent branch of industry. The harbor has been much improved within the last few years by dredging, and there is a fine quay 1,550 feet long. The traffic is principally in coals (bituminous), for which Newcastle is the greatest mart in the world. During the year 1857 the export amounted to 3,855,364 tons, of which 2,082,001 tons were shipped coastwise and 1,773,363 tons to foreign ports. In addition to this, an immense quantity is sent by railway to different parts of the kingdom. The trade seems to have been an important one from the very earliest period of the town; the burgesses obtained from Henry III. in 1239 a license to dig the coals within the borough, and by the time of Edward I. the business had grown to such consequence that Newcastle was able to pay a revenue of £200. In 1615 the trade employed 400 ships, and extended to France and the Netherlands. The exportations of coke are also important, amounting to more than 100,000 tons annually. Lead is shipped in large quantities; it is brought from Cumberland and the hills of western Northumberland and Durham, and is exported both in pigs and in the manufactured state. This traffic is still more ancient than that in coals. The imports are chiefly agricultural products, wine, spirits, colonial produce, tallow, hides, tar, pitch, limestone, bones, bristles, rags, oil, and timber. The following table shows the movement of shipping in 1856:

Character.	Entered.		Cleared.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Steam	628	145,777	902	298,070
Sailing	6,058	789,660	16,708	2,568,784
Total	6,686	935,437	17,610	2,766,854

Of the aggregate tonnage, 291,606 tons inward and 1,458,789 tons outward were employed in the coasting, and the remainder in the foreign and colonial trade. The registered shipping of the port was 562 sailing vessels of 127,918 tons, and 104 steam vessels of 8,985 tons.—Newcastle derived its ancient name of Pons Ælii from a bridge over the Tyne attributed to the emperor Hadrian, and its subsequent one of Monkchester from its monastic establishments. The holy well of Jesus Mound (now called Jesmond), about a mile from the town, was a favorite resort for pilgrims. During the reign of Charles I. the city was taken by the Scottish army under Lesley. The borough is governed by a mayor, 14 aldermen, and 42 councillors, and returns two members to parliament.

NEWCOME, William, an English prelate and biblical critic, born in Berkshire in 1729, died in Dublin, Jan. 11, 1800. He was educated at Oxford, and distinguished himself as a tutor, Charles James Fox being one of his pupils. He became bishop of Dromore in 1766. In 1775 he was translated to Ossory, in 1779 to Waterford, and in 1795 was made archbishop of Armagh. The most important of his works are: "The Harmony of the Gospels" (1778); "Observations on our Lord's Conduct as a Divine Instructor" (1782); "New Critical Version of the Twelve Minor Prophets and Ezekiel" (1785–'8); "An Historical View of the English Biblical Translations" (1792); and "An Attempt toward Revising our English Translation of the Greek Scriptures" (1796).

NEWELL, Samuel, an American missionary, born in Durham, Me., July 24, 1784, died in Bombay, March 30, 1821. He was graduated at Harvard college in 1807, and having studied theology at Andover, offered himself as a missionary to the general association of ministers at Bradford, June 27, 1810; was ordained together with Judson, Nott, Rice, and Hall, at Salem, Feb. 5, 1812; and sailed two weeks afterward in company with Judson for Calcutta. On his arrival the Bengal government ordered him to leave the country, whereupon he sailed for the Isle of France, thence to Ceylon, and finally in 1817 joined Mr. Hall at Bombay, where he remained until his death. He was one of the signers of the paper which led to the formation of the American board of commissioners for foreign missions, and was one of the first to engage personally in that work. In conjunction with Mr. Hall he wrote the "Conversion of the World, or the Claims of Six Hundred Millions" (Andover, 1818).—Harriet, wife of the preceding, one of the first female missionaries from the United States, born in Haverhill, Mass., Oct. 10, 1793, died in the Isle of France, Nov. 30, 1812. Her maiden name was Atwood. At the age of 15 she made a profession of religion, and resolved to devote herself to the work of a missionary. She was married to Mr. Newell in Feb. 1812, and accompanied him to India. On the passage from Calcutta to the Isle of France she gave birth to a daughter, who lived only a few days, and shortly after their arrival Mrs. Newell died of consumption. Her memoirs, by Dr. Leonard Woods of Andover, have passed through many editions, and have given a powerful impulse to the missionary cause in this country.

NEWFOUNDLAND, an island forming the most eastern part of North America, lying at the mouth of the gulf of St. Lawrence, and belonging to Great Britain. Its northern point is in lat. 51° 37′ N., separated from Labrador by the straits of Belle Isle, which are 12 m. wide. Its extreme length N. and S. is about 420 m. The southern coast of the island reaches to lat. 46° 38′, and extends E. and W. about 320 m., or from long. 51° 40′ to 59° 31′ W. Cape Ray, its S. W. point, is about 70 m. distant from Cape North, the nearest point of Cape Breton island. Its area is about 36,000 sq. m.; pop. in 1858, 119,336. The island is triangular in form, and has a coast line of nearly 1,000 m., everywhere indented with deep bays, but especially broken on the S. E. and E. From Cape Bauld at the N. to Cape Freels, about the middle of the E. coast, extends a wide basin of the Atlantic enclosing Hare, Canada, and White bays, the bay of Notre Dame, bay of Exploits, and Sir J. Hamilton's sound. Immediately S. of Cape Freels is Bonavista bay. In the S. E. the large peninsula of Avalon, very narrow at the neck and spreading as it extends seaward into three smaller peninsulas, runs out between Trinity and Placentia bays. Its coasts are broken by Conception and St. Mary's bays. At its S. extremity is Cape Race, off which is stationed the news yacht to intercept steamers from Europe and despatch their news by telegraph to the press of the United States. Between Placentia and Fortune bays, on the S. E. and S. coasts, another long peninsula stretches toward the S. W.; a few miles W. of its point lie the islands of Miquelon, Langley, and St. Pierre. Hermitage bay is the only other large indentation on the S. coast, and St. George's bay and the bay of Islands are the principal ones on the W. The W. coast is much more regular than any of the others. Good harbors abound, particularly in the S. E., where is situated the capital, St. John, with a fine port; but the entrance to many of the harbors is obstructed by rocky ledges. The general aspect of the coasts as seen from the sea is rugged, precipitous, and uninviting, the rocky cliffs rising from the sea to a great height, and being clad with a scanty vegetation.—In the interior there are numerous lakes and ponds which give rise to several rivers, of which the river Exploits, flowing into the bay of the same name, the Humber into the bay of Islands, and the Gander into Sir J. Hamilton's sound, are the most considerable. Few of the streams are navigable, and even the Indian canoe can scarcely overcome the difficulties occasioned by their frequent falls and rapids. The largest lakes are Red Indian, the source of the river Exploits, 30 m. long and from 5 to 6 m. wide, and Grand pond, 50 or 60 m. long and 5 m. wide. It is estimated that about ⅓ of the surface of the island is covered with fresh water. There are no mountains, but the interior is diversified by hills, the highest of which are not more than 1,500 feet above the sea. The elevated and exposed tracts, which are called "barrens," are generally destitute of vegetable soil, and covered with a thin and dwarfish growth of shrubs and trees. In the lowlands there are marshes covered with peat moss, and swamps of juniper, cedar, and spruce, which render the country almost impenetrable. As the agricultural resources are inconsiderable, and neither the timber nor minerals very important, the interior has been but little explored. The principal trees are the fir, spruce, birch, larch, willow, and mountain ash, all being of small size, and growing close together in a tangled maze, with the branches interlacing and reaching to the ground. Agriculture employs a large part of the population, but it is only in the S. E. that much effort has been made to form settlements and clear the land. The soil and climate are better suited to pasturage than tillage. Potatoes and grain are the principal crops. The fauna includes the deer, bear, wolf, hare, beaver, marten, dog, and wild cat. The Newfoundland dog, so famous for its size, sagacity, and fidelity, is now rarely found of pure blood, the animals commonly known by its name being crosses of innumerable varieties. The morse or sea horse, which formerly abounded on the coast, has almost or wholly disappeared, but seals are numerous.—The geological structure of Newfoundland is pretty well understood from the fine exposures of its rock formations as they abut in bold cliffs around its coast. Everywhere deep indentations extend up into the island, the general direction of which is toward the N. N. E. or the S. S. W., on the line of the range of hills and of the strata of which these are composed. The S. E. portion of the island is made up of metamorphic rocks, as mica and argillaceous slates, granites, gneiss, sienite, porphyry, &c., and among these occur belts of sandstones and conglomerates. No fossils have been met with in these sedimentary rocks by which their age may be determined, but they may evidently be referred to the older members of the palæozoic series. They are associated with serpentine and penetrated by greenstone and other basaltic rocks; and in several localities they present indications of metallic veins, as at Shoal bay, 12 m. from St. John, where a copper mine was opened in 1775 by some Cornish miners; and also at the S. extremity of the island upon the long point between Placentia bay and Fortune bay, where indications of lead and copper are reported to be found. A vein of argentiferous galena was opened upon lands ceded to the telegraph company, and has been worked to some extent. Its locality is on the S. side of the neck of land which separates the peninsula of Avalon from the main body of the island. In 1856 two copper mines were opened in Conception bay and a third in Placentia, and rich copper ores of the variegated kind have been shipped from them to Liverpool. All along the S. coast the rocks are of similar character to those of the S. E. portion of the island; and the same ranges of rocks were crossed by Mr. Cormack in 1823 along a line from 20 to 30 m. back from the coast, extending from Trinity bay to the W. side of the island at St. George's bay. At the S. W. extremity of the island, the range of the metamorphic rocks gives place to red sandstones and the shales and conglomerates of the coal measures. These contain beds of gypsum, which crop out upon the coast; and in the interior, at several localities within 8 or 10 m. of the shore of St. George's bay, small beds of bituminous coal have been discovered. The formation ranges with the line of the coast, and appears to be repeated behind a narrow belt of metamorphic rocks, which passes nearly N. and S. at a distance of about 30 m. inland from the general line of the coast. Back of this belt is a comparatively smooth and fertile region, stretching toward the N., it is supposed, to the extremity of the island at the straits of Belle Isle. It is reached by a few streams, as the Humber river, Coal river, Great Codroy river, &c. At the head of Grand pond a bed of cannel coal has been found 3 feet thick. The distance to St. George's harbor is about 50 m. down the lake to the foot, and thence overland about 15 m. No attention is given either to the mineral or agricultural resources. Little is known as to the probable importance of the coal beds; the beds of gypsum, which are abundant and very accessible, are wholly neglected; and though limestone abounds, and cliffs of marble (which is reported to be of excellent quality) are found extending for miles along the Humber river, no attempt has yet been made to ascertain their real value. A geological reconnoissance of the coast was made in 1839 and 1840 by Mr. J. B. Jukes, who published a report to the government, and also 2 vols. in 1842 entitled "Excursions in and about Newfoundland." The country is also described in a work by Sir Richard H. Bonnycastle, "Newfoundland in 1842" (London, 1842), which is accompanied by a complete map of the island.—Though from the high latitude of Newfoundland the winters are long and the summers short, the severity of the former is greatly mitigated by the proximity of the Gulf stream. To the same cause are to be attributed the dense fogs which prevail throughout this region; for as the warm and moist airs over the gulf waters meet the cold atmospheric currents from the north, the vapors by their condensation become apparent in the form of heavy fogs. The winter temperature of St. John is so mild that the harbor is rarely frozen over; and the inclemencies of the climate are felt rather in severe storms, which are very prevalent along the coasts, than in the intense cold of winter. The fogs and violent gales render the coast a dangerous one to navigators, and frequent wrecks occur along the S. side of the island, especially about Cape Race.—The settlements are chiefly on the peninsula of Avalon and at the heads of the bays in this part of the island. The most important, after St. John, are the Bay of Bulls, Brigus, Ferryland, Fermore, and Renowes. On the western side, which in soil, climate, and mineral wealth possesses great advantages over the eastern, there are but few scattered settlers. Indians of two very distinct tribes, the aborigines or Red Indians, and the Micmacs from New Brunswick, were many years ago numerous upon the island. The former have been entirely exterminated by the whites and the Micmacs. Some of the latter still remain, subsisting chiefly by hunting, and maintaining amicable relations with the colonists. The great business of the people is fishing, in which about $\frac{9}{10}$ of the inhabitants are in some way or another engaged. About 350 vessels are employed in catching seals, 80 in the coast and bank fisheries, and more than 10,000 in taking cod. So predominant is the importance of this last branch, that in Newfoundland the term "fish" is generally understood to mean only cod. The value of boats, nets, and other apparatus used in the business is estimated at $2,500,000, and the average annual product at $6,000,000. The yield may be set down in round numbers as 1,000,000 quintals of cod, 5,000 tierces of salmon, 20,000 barrels of herrings, 500,000 seal skins, 6,000 tons of seal oil, 4,000 tons of cod oil, &c. In consequence of the reciprocity treaty, the exports of codfish from the port of St. John to the United States almost tripled within two years, rising from 21,386 quintals in 1853 to 60,257 in 1855. In 1855 the exports of Newfoundland amounted to £1,142,212, of which £594,969 went to British possessions and £79,984 to the United States; the principal articles were: cod, £680,283; salmon, £13,758; herrings, £19,794; cod oil, £146,645; seal oil, £154,624; blubber and dregs, £2,408; seal skins, £46,836; total export of products of fisheries, £1,088,253. The imports during the same year amounted to £1,152,804, of which £555,591 came from British possessions and £354,489 from the United States. The principal articles imported were: flour, £268,067; bread, £144,737; woollens, £88,134; pork, £70,212; butter, £51,838; cotton goods, £49,912; leather and leather manufactures, £49,204; molasses, £39,808; and sugar, £32,370. The commerce for the years 1853, '4, and '5 is shown in the following table:

Years.	Vessels entered.		Vessels cleared.		Value of imports.	Value of exports.
	No.	Tonnage.	No.	Tonnage.		
1853........	1,221	186,428	1,050	196,448	£912,095	£1,170,503
1854........	1,048	129,229	937	117,193	964,527	1,019,572
1855........	1,077	140,461	968	131,863	1,152,804	1,142,212

—The present form of government of the island was established in 1855, in accordance with which the governor (in 1860, Sir Alexander Bannerman) is to act with the assistance and advice of an executive council. The legislature is composed of the governor, the legislative council, the members of which are appointed by the crown, and the general assembly, the members of which are elected by the people. The revenue in 1855 was £126,449, and the expenditures £120,926. The public debt of the colony is upward of £150,000. The contribution of the home government to the colony in 1857 was £20,114. In 1855 there were 218 schools, attended by 13,602 scholars, and the amount paid from the colonial revenue for public education was nearly £9,000. About £18,000 were expended for the relief of the poor. The Episcopal church numbered 42,000 members, the Roman Catholic 56,000, and the Wesleyan Methodist 18,000. No denomination is especially supported by the government, except that the Episcopal bishop receives £200 a year from the British treasury.—Newfoundland was discovered June 24, 1497, by John Cabot, who with his son Sebastian was engaged upon a voyage of exploration under the commission of Henry VII. He made the land at a place on the E. coast which he called Bonavista, a name it still retains. Cabot called the peninsula at the S. E. extremity of the island St. John, because it was discovered on St. John's day. In 1500 the island was visited by the Portuguese navigator Gaspar de Cortereal, who discovered and named Conception bay. The Portuguese in 1501 and 1502 established regular fisheries on the shores, and the Biscayans and French soon engaged in the same enterprise. (See FISHERIES.) Several expeditions were fitted out by the English and French with the intention of colonizing the island, but none of them were successful up to 1578, when there were 50 ships belonging to England engaged in the fishery, as many to Portugal, and 150 to France and Spain. On Aug. 5, 1583, Sir Humphrey Gilbert, in command of 4 armed vessels, entered the harbor of St. John and took formal possession of the island in the name of Queen Elizabeth. He established laws regulating the fisheries, and levied contributions on the ships of all nations found within 200 leagues of St. John. The expedition soon came to a disastrous termination by the wreck of the vessels and the loss of their commander while recrossing the ocean. Other attempts to colonize the island were afterward made, the least disastrous of which was that of Mr. Guy, a Bristol merchant, in 1610, who founded a colony at Mosquito cove in Conception bay, which lasted two years. In 1615 Capt. Richard Whitbourne, of Exmouth in Devon, was sent by the admiralty to Newfoundland to establish order among the fishermen and correct the great abuses that prevailed. He made an attempt to impanel juries in the most frequented harbors, and was the first to introduce the forms of law in British America. In 1618 he again visited the island with aid to the colony of Dr. Vaughan in the southern part, at the place now known as Little Britain. The settlement of Sir George Calvert, afterward Lord Baltimore, was made in 1621, and included the S. E. peninsula, to which he gave the name of Avalon. He built a large house at Ferryland and a strong fort at Isle aux Bois. But not long afterward he abandoned Newfoundland for Maryland, where he obtained another large grant. In 1626 the cod fishery of Newfoundland was of such importance that 150 vessels were sent out from Devonshire alone. The trade was grievously harassed by pirates and by the rivalry and opposition of the French. Charles I. in 1633 established a code of regulations; and in 1635 permission was granted to the French to cure and dry fish in Newfoundland, they paying 5 per cent. of the produce for the privilege. In 1660 they founded a colony in Plaisance or Placentia bay, which the English destroyed in 1692. Until the peace of Utrecht in 1713 the ports were frequently the scenes of warfare between the English and French, one and the other power alternately gaining possession of them. The English government was also opposed to the settlement of their own people, and broke up their establishments on the ground of their being likely to monopolize the fishery, and prevent it from becoming a nursery for British seamen. The treaty of Utrecht gave Great Britain the sole sovereignty of the island, but permitted the French to catch and dry fish on the N. and parts of the E. and W. shores. In 1762 the French again obtained possession of St. John, but were soon driven out by the English under Lord Colville. The next year the treaty of Paris was ratified, by which the French yielded their claims to the colonies of British America, retaining the right to fish in the gulf of St. Lawrence 3 leagues from its shores, and 15 from those of Cape Breton, and possession of the rocky islets of St. Pierre and Miquelon on condition of not using them for military purposes. From 1759 to 1767 Capt. Cook, the famous navigator, was employed as a naval officer in the English service on this station, and became eminent for his industry and skill as a marine surveyor. The only surveys of the coast upon which the present maps are based were made by him, and his marks are still to be seen at the S. W. part of the island. By his observation of an eclipse of the sun, Aug. 5, 1766, compared with observations made at Oxford, the longitude of Cape Ray was first determined. In the progress of the troubles between Great Britain and the colonies, which led to the revolutionary war, Newfoundland suffered extremely from the non-intercourse act passed by the first congress and carried out in 1775. Dependent upon New England for supplies to the annual value of nearly £350,000, when these were suddenly cut off and the coast and harbors were ravaged by American privateers, the inhabitants were reduced to the greatest distress before they could be relieved by the protective measures of the mother country. On the restoration of peace in 1783 the citizens of the United States retained the right to fish as previously, but could cure and dry their fish only in the unsettled bays, harbors, and creeks of Nova Scotia, the Magdalen islands, and Labrador. The population in 1785 was 10,244, and 8,034 acres of land were under cultivation. From this time the prosperity of the island has been but little interrupted. In 1807 the first newspaper, "The Royal Gazette and Newfoundland Advertiser," was published. In 1809 Labrador and the island of Anticosti were annexed to the government of Newfoundland. The colonial government granted in 1854 a charter to the "New York, Newfoundland, and London Telegraph Company," for the purpose of establishing telegraphic communications between Europe and America. Subsequently the land wires were completed between St. John and the cable terminus at Cape Ray, and the "Atlantic Telegraph Company" was established in 1856 to extend the existing line to Ireland.

NEWFOUNDLAND DOG. See Dog.

NEWMAN, John Henry, D.D., an English clergyman, and superior of the English congregation of the Oratory, born in London, Feb. 21, 1801. He was graduated at Trinity college, Oxford, and was elected fellow of Oriel college. In 1824 he was ordained, but his life at Oxford was essentially academic, occupied with the duties of his fellowship, and with those that devolved upon him afterward as vice-principal of St. Alban's hall in 1825 and 1826, tutor of Oriel in 1826, and public examiner of the university in 1827 and 1828. In 1828 he succeeded Dr. Hawkins as vicar of the church of St. Mary the Virgin; his sermons in that church gained for him the reputation of a remarkable preacher. In 1833 he published "The Church of the Fathers," which is noteworthy as showing the course his mind was taking toward the Roman Catholic church. About this time appeared also his treatise on the Arians of the 4th century. During the years that the "Tracts for the Times" were in course of publication, he was a large contributor to them. He also wrote and published a treatise on "Justification," contributed articles to the "British Critic," published a work on the four "Prophetical Offices of the Church," and took part in preparing the "Library of the Fathers." The views of the theological school of which he was really the head, though it took its name from another of its members, Dr. Pusey, excited general attention, especially among the members of the Anglican and Protestant Episcopal churches. The excitement was brought to its height by the publication of tract No. XC., the author of which was Dr. Newman, in which he tried to show that the 39 articles of the church of England might be subscribed consistently with a belief in the decrees of the council of Trent. This excited a violent opposition. Shortly afterward he retracted certain bitter expressions he had used in writing of the church of Rome; he resigned the vicarage of St. Mary, and retired to Littlemore, near Oxford, where he remained a long time in strict seclusion. Finally, on Oct. 9, 1845, he was received into the Roman Catholic church by the provincial of the Passionist Fathers in England. From Littlemore he went to St. Mary's college at Oscott, and thence to Rome, accompanied by some and followed by others of his old disciples. He received the priesthood in Rome, and embraced the institute of the Oratory, founded by St. Philip Neri. On his return to England in 1848 he established the congregation of the Oratory, and shortly after opened the first house in Edgebaston, Birmingham. Some statements, made in one of a series of lectures delivered and afterward published by him on the "Present Position of Catholics in England," with regard to the ex-Dominican monk Dr. Achilli, involved him in a suit for libel. The suit was decided against him, not without a protest against the verdict as unfair from the "Times" newspaper and other sources. The costs of the suit, about $46,000, were paid by a subscription from all parts of the world amounting to $64,000. The surplus was divided by him between a religious community and the Catholic university of Ireland, the latter receiving $16,000 and the former $2,000. Upon the foundation of the Catholic university of Ireland (1852) Dr. Newman was made its first rector, but has since resigned that position, and returned to the Oratory at Birmingham, where he is at present engaged in an English translation of the Holy Scriptures, confided to him by Cardinal Wiseman and the other Roman Catholic bishops of England, with the approbation of the pope. Beside the works already mentioned, he wrote, before he became a Roman Catholic, "Parochial Sermons" (6 vols.), "Essay on Ecclesiastical Miracles," "Sermons preached before the University of Oxford," and an "Essay on the Development of Christian Doctrine;" and since his conversion he has published "Sermons to Mixed Congregations," "Occasional Sermons," "Lectures on Anglican Difficulties," "Discourses on University Education," "Office and Work of Universities," "Lectures on the Turks," "Loss and Gain," and "Callista," the last two being works of fiction.—**Francis William**, an English author, brother of the preceding, born in London in 1805. He was graduated at Worcester college, Oxford, in 1826, with first class honors in both classics and mathematics. In Nov. 1826, he became a fellow of Baliol college, which position he resigned in 1830, being unable conscientiously to sign the 39 articles previous to taking the degree of M.A. The 3 following years he spent in various parts of the East, in Aleppo, Bagdad, Teheran, Tabriz, and Constantinople; and on his return to England in 1834 he became classical tutor in Bristol college. This situation he occupied until 1840, when he was chosen classical professor at Manchester New college, and in 1846 was appointed professor of the Latin language and literature in University college, London, which position he still holds. He has written many works on historical, political, and especially theological subjects, in which he has taken an exactly contrary course to that of his brother. He has also written much for reviews and for the newspaper press. Among his theological works may be mentioned "Catholic Union: Essays toward a Church of the Future and the Organization of Philanthropy" (8vo., 1844); a tract entitled "A State Church not Defensible" (1846); "A History of the Hebrew Monarchy, from the Administration of Samuel to the Babylonish Captivity" (1847); "The Soul, its Sorrows and Aspirations" (1849); "Phases of Faith, or Passages from the History of my Creed" (1850); and "Theism, Doctrinal and Practical" (1858). Among his political and historical works are: "Four Lectures on the Contrasts of Ancient and Modern History" (1847); "An Appeal to the Middle Classes on the urgent Necessity of numerous Radical Reforms, Financial and Organic" (1848); "On the Constitutional and Moral Right or Wrong of our National Debt" (1849); a tract on "The Crimes of the House of Hapsburg against its own Liege Subjects" (1851); "Lectures on Political Economy" (1851); and "Regal Rome, an Introduction to Roman History" (1852). He has also published "A Collection of Poetry for the Practice of Elocution" (1850); "Odes of Horace translated into unrhymed Metres" (1853); "The Iliad of Homer translated into unrhymed Metres" (1856). He assisted in editing a translation of Huber's work on "The English Universities" (1843), and in 1853 brought out an edition of the "Select Speeches of Kossuth." He is likewise author of "Lectures on Logic," of a "Grammar of the Berber Language," and of a work on the "Difficulties of Elementary Geometry."

NEWMARKET, a market town of England, consisting mainly of one long street, wide and well lighted, the N. side of which is in Suffolk, and the S. side in Cambridgeshire, 13 m. E. by N. from Cambridge, and 65 m. N. E. from London, with which it is connected by the eastern counties railway; pop. in 1851, 3,356. It contains a corn market, assembly rooms, a handsome church, and a jockey club. It derives its chief importance from the races, 7 of which are held annually, viz.: the Craven, on Easter Monday; the first spring, on the second Monday following; the second spring, a fortnight after that; the July; the first October, held on the first Monday in that month; the second October, on the second Monday following; and the third October, or Houghton, a fortnight afterward. The race course, considered the best in Great Britain, is about 3 m. from the town, and between 4 and 5 m. in circuit. There is also a training ground about 1½ m. long.

NEWPORT, a S. E. co. of R. I., consisting of a portion of the mainland and a number of small islands in Narraganset bay, including Rhode, Canonicut, Prudence, and Block islands; area, 136 sq. m.; pop. in 1850, 20,007. It has an undulating surface and a generally fertile soil, and contains large quantities of coal. In 1850 the productions were 156,698 bushels of Indian corn, 184,988 of oats, 78,688 of potatoes, 13,776 tons of hay, 48,565 lbs. of wool, and 222,916 of butter. There were 9 cotton and 5 woollen factories, 8 flour mills, several manufactories, 36 churches, and 2,951 pupils attending public schools.

NEWPORT, a post town, port of entry, and the capital of Newport co., R. I., and semi-capital of the state, situated on the W. shore of Rhode island on Narraganset bay, 5 m. from the ocean, in lat. 41° 29′ N., long. 71° 19′ 12″ W.; pop. in 1850, 9,563; in 1860, about 10,500. It has a fine harbor, which may be entered at all times without a pilot, and is safe, commodious, and deep enough for the largest ships. It is defended by Fort Adams on Benton's point and Fort Wolcott on Goat island. The town is built on a declivity facing the harbor, and contains a state house, custom house, market house, the Redwood library with 4,000 volumes, the masonic hall, armory hall, and numerous elegant private residences. Its salubrious climate, refreshing ocean breezes, facilities for sea bathing, and charming natural scenery have combined to render it one of the most popular summer resorts in the United States, and the visitors during the fashionable season are numbered by thousands. The whole S. portion of the island is now dotted over with villas, and there are several large hotels, among which may be mentioned the Ocean house at the S. end of Bellevue street, the Atlantic house at the head of Pelham street, the Bellevue house in Catharine street, the Fillmore, and the Aquidneck. The pleasantest part of the town is that which has been built within the last 20 years for the convenience of summer visitors, and which is constantly being added to and improved. The old town is interesting for its quaint and picturesque appearance. The "old stone mill," whose origin and purpose were once a theme of much learned discussion; Fort Brown and its surrounding rocks, called "the dumplings;" Fort Adams, one of the most costly and extensive fortifications in the Union; the "purgatory rocks" and "hanging rocks" at the second beach; the great "spouting cave," and "the glen," are the principal objects of interest. The beaches, called first, second, and third, are not only excellent spots for bathing, but also favorite promenades at low tide. The commerce of Newport is now very limited, and its manufactures are almost confined to a few cotton mills, a shot tower, and lead works. The tonnage of the district on June 30, 1859, was 8,210, of which 3,575 was registered, and 4,635 enrolled and licensed. The exports during the previous year were $56,026, and the imports $79,497. Number of vessels cleared, 28, tonnage 5,721; vessels entered, 31, tonnage 7,322.—Newport was settled in 1638 by 17 colonists from Roger Williams's party, headed by William Coddington. The settlers were early distinguished for their enterprise as merchants and navigators, and for their activity in the whaling business. As early as 1764 their trade with the West Indies employed 150 vessels, and 14,000 hhds. of molasses were annually imported, to be converted into rum for the African market. Newport was one of the first places which manifested a spirit of resistance to the arbitrary acts of the mother country, and some years before the Boston tea party the British armed sloop Liberty, stationed here to exact an odious tax, was burned in the harbor. During the revolution 8,000 British and Hessian troops were quartered on the town, and its commercial interests never recovered from the injury which they inflicted. They destroyed 480 houses, robbed the library, then the finest except one in America, burned the shipping, cut down all the groves and orchards for fuel, and carried off the town records. Before this period Newport had been a favorite resort of men of science and letters, and was noted for the opulence and refinement of its inhabitants. Bishop (then Dean) Berkeley resided here 2½ years, and built a house which is still standing. It was here that he composed his celebrated work, the "Minute Philosopher." Commodore O. H. Perry was born near Newport, and is buried there, with a monument to his memory.

NEWPORT, a city of Campbell co., Ky., on the Ohio river, just above the mouth of the Licking, and opposite Cincinnati, 70 m. N. N. E. from Frankfort; pop. in 1860, 10,047. It is built on an elevated plain commanding a fine view of Cincinnati, with which it communicates by a steam ferry; and a splendid suspension bridge over the Licking river connects it with Covington. The villages of Jamestown and Brooklyn are in the immediate vicinity, and contain many elegant residences of the wealthy citizens. There are several rolling mills, iron founderies, an academy, a U. S. arsenal, a bank, and various manufactories.

NEWPORT. I. A municipal and parliamentary borough and market town of Monmouthshire, England, situated on the right bank of the river Usk, about 5 m. from its mouth, and 20 m. S. W. from Monmouth; pop. in 1851, 19,842. It is largely engaged in ship building, and has several iron founderies, nail works, and manufactories of anchors, chain cables, &c. There is a dock capable of admitting vessels of large size. The number of vessels belonging to the port in 1856 was 92, tonnage 16,280. In the same year there cleared from the port 7,826 sailing vessels, tonnage 636,461, and 274 steamers, tonnage 20,087. The town is connected with Gloucester, Cardiff, and Pontypool by railway, and with the last of these places by the Monmouthshire canal. Of the castle of Newport, which is supposed to have been built by the earl of Gloucester, a son of Henry I., only a square tower and a part of the great hall now remain, and are at present occupied as a brewery. The borough unites with Monmouth and Usk in sending one member to parliament. In 1839 it was the scene of the chartist insurrection for which John Frost and others were found guilty of high treason, and transported for life. II. A municipal and parliamentary borough of Hampshire, England, in the isle of Wight, on the left bank of the river Medina, which is navigable for small vessels, 18 m. S. S. E. from Southampton; pop. in 1851, 8,047. Lace and agricultural implements are manufactured. The borough returns two members to parliament.

NEWPORT, Christopher, one of the founders of the colony at Jamestown, Va. He commanded the 3 vessels which carried out in 1606 the first settlers of that colony, and was one of the council for governing the province appointed by the king. After visiting with Capt. John Smith and others the "emperor of the country," Powhatan, he returned to England in June, 1607. He came back the next year with supplies and 120 emigrants, chiefly goldsmiths and gentlemen, "packed hither," says Smith, "by their friends to escape ill destinies." As their object was gold, "there was no talk, no hope, no work, but dig gold, wash gold, refine gold, load gold;" and some yellow mica having been discovered near the present site of Richmond, Newport filled his vessels with it under the impression that it was gold, and carried it to England. He subsequently came back to Virginia in the fleet conveying Lord Delaware and the new charter to the colony, but was wrecked in the Bermudas, where they built a vessel with which they reached their destination. Newport's reputation as a sailor had been acquired in expeditions against the Spaniards. By Smith he is described as "empty, idle, timid, and ostentatious."

NEWPORT, George, an English naturalist and physiologist, born in Canterbury, July 6, 1803, died in London, April 7, 1854. He acquired by his own unaided efforts a knowledge of natural history, and was appointed curator of the museum of natural history at Canterbury. He subsequently embraced the medical profession, but does not appear to have practised it. He wrote valuable essays on physiology, entomology, and botany, which were chiefly published in the "Transactions" of the royal, the entomological, and the Linnæan societies. During his latter years he enjoyed a pension of £100 from government.

NEWRY, a parliamentary borough and river port of Ireland, on the borders of the counties of Down and Armagh, on the Newry water and canal and the Dublin and Belfast junction railway, 32 m. S. S.W. from Belfast, and 63 m. N. from Dublin; pop. in 1851, 13,191. There are 2 churches of the established religion, 2 places of worship for Methodists, 3 for Presbyterians, and 2 for Roman Catholics. The chief manufactures are linen, cotton, iron, beer, and cordage; and there are numerous mills, distilleries, and potteries. The town exports large quantities of provisions. Its principal trade is with Liverpool and Glasgow, but it has also some foreign commerce. The river, which is here crossed by 6 bridges, admits vessels of 600 tons to the town and of 1,000 tons 6 m. below. In 1856 the number of vessels registered at the port was 114, tonnage 6,648. The entrances for that year (mostly coastwise) were 824 sailing vessels, tonnage 57,336, and 254 steamers, tonnage 42,115; the clearances were 287 sailing vessels, tonnage 19,474, and 250 steamers, tonnage 42,945.

NEWSPAPERS, printed sheets published at stated intervals, chiefly for the purpose of conveying intelligence on current events. Newspapers were preceded in antiquity by the *Acta Diurna* of the Romans, which were daily, official, written reports of public occurrences; and in modern Europe by periodical publications in manuscript, for which the stirring events in the 15th and 16th centuries created a demand in Germany, Italy, and other countries. Of the origin of newspapers in England, Alexander Andrews says, in his "History of British Journalism" (London, 1859): "First we have the written news letter furnished to the wealthy aristocracy; then, as the craving for information spread, the ballad of news sung or recited; then the news pamphlet, more prosaically arranged; then the periodical sheet of news; and lastly the newspaper." The first regular series of weekly newspapers hitherto discovered was entitled the "Weekly Newes from Italy, Germanie, &c." (1622), the "English Mercurie of 1588," long regarded as the first printed English newspaper, having been exposed as a forgery in 1839 and again in 1850 by Mr. Thomas Watts, one of the librarians of the British museum. Prominently connected with most of the early weekly sheets, which appeared under the name of "Weekly Newes," "Times Newes," "Newes," &c., was Nathaniel Butter, who is regarded as the father of the regular newspaper press. The first attempt at parliamentary reporting was made in 1641; the first advertisement was inserted as early as 1648, and the first paper exclusively devoted to advertisements and shipping intelligence appeared in 1657. The news given in the papers treated chiefly of foreign affairs. Home politics were scarcely discussed till after the abolition of the star chamber in 1641. Various partisan sheets were published during the civil war, chiefly under the name of "Mercuries," and counting among their most eminent editors Nedham, Birkenhead, Digby, and Heylin, the last regarded as the ablest of them all. Many of the papers were notorious for their eccentricity and coarseness, and still more for their bitterness. After the restoration the censorship of the newspapers became more stringent. A semi-official organ, edited by Sir Roger L'Estrange, who was the licenser of the press, and held for some time a kind of monopoly of journalism, was supplanted in 1665 by the "Oxford Gazette," published during the temporary removal of the court to that city on the outbreak of the plague. On the return of the royal family to the metropolis (1666) it appeared as the "London Gazette," and, as the official organ of the government, was placed under the control of the under secretary of state. The press was for a long time subjected to many persecutions, and the licensing act was not abolished until after the accession of William and Mary. In the mean time the first commercial newspaper, the "City Mercury," was published in 1675; the first literary paper, the "Mercurius Librarius," in 1680; the first sporting paper, the "Jockey's Intelligencer," in 1683; and the first medical paper in 1686. From that year to 1692, 26 new journals sprang into existence, including the first bearing the title of a reform paper, the "Mercurius Reformatus;" the first publication in the style of "Notes and Queries," the "Athenian Mercury;" the first ladies' paper, the "Ladies' Mercury;" the first agricultural and an increasing number of literary journals. Daily newspapers did not make their appearance until the 18th century. The first daily morning newspaper was the "Daily Courant" (1702), consisting of but one page of two columns, and containing 5 paragraphs translated from foreign journals. The leading London weekly journals at that time were mostly sold for a penny; supplements with the latest news commanded an extra price. Home affairs were then little discussed; foreign news supplied the staple of newspaper information, and correspondents were employed in the principal cities of Europe. In 1726 appeared the first number of the "Craftsman," which obtained for a time a circulation of nearly 12,000 copies. In 1730 no fewer than 200 half-sheets per month were issued in London alone, beside a number of daily and weekly journals. The aggregate number of copies of newspapers sold in England in 1757 was about 7,000,000; in 1760, 9,000,000; and in 1767 upward of 10,000,000. The "North Briton," edited by Wilkes, who played a part so conspicuous in consolidating the liberty of the press, first appeared in 1762. The "Englishman," established in the same year, attracted attention in 1766 on account of several of Burke's contributions. The letters of Junius began to appear in 1767 in the "Public Advertiser," and contributed powerfully to raise the political importance of the daily press. The leading daily journals of London in the latter part of the 18th century were the "Morning Chronicle" (founded in 1769), the "Morning Post" (1772), the "Morning Herald" (1781), the "Times" (1785), and the "Morning Advertiser" (1794). The "Times," destined subsequently to eclipse all the other English journals, originally appeared under the name of the "Daily Universal Register." It was printed and published by John Walter of Printing House square, who, in the impression of Jan. 1, 1788, added to the original name of his journal that of the "Times." Its circulation at the beginning of this century was only 1,000 copies a day, while that of several others was in the neighborhood of 4,000. The "Morning Chronicle" and "Morning Post" enjoyed during that period great literary and political importance. Coleridge, Southey, Lamb, Wordsworth, and Mackintosh (the brother-in-law of the editor, Mr. Stuart, afterward editor of the "Courier"), particularly contributed to raise the "Morning Post" to eminence; but the weight of talent still rested in 1812 with the "Morning Chronicle," whose editor, Mr. J. Perry, counted Fox and Sheridan among his active personal friends, and many youthful aspirants to literary fame among his contributors. In 1818 there were 56 journals circulating in London, of which 8 were published every morning, 7 every evening (the first evening paper having been established as early as 1778), 7 every other evening, 16 every Sunday (the first Sunday paper had appeared in 1788), and 18 weekly on other days. The "Courier" was then considered the best informed daily journal, and the newsmen went through the streets blowing their horns and announcing the "great news," "glorious news," "got a shilling for the 2d edition of the Courier." The "Times" was in the mean time fighting its way into the front rank of journalism. Its remarkable success was ascribed to a firm attitude toward the government and a freedom from party ties; to an efficient system in securing the earliest transmission of news; to a constant care in improving the mechanical resources of the paper, and in securing the best available talent; and above all to the application of steam power to its printing press in 1814. On the morning of Nov. 29, 1814, the readers of the "Times" were informed that "the journal of this day presents to the public the practical result of the greatest improvement connected with printing since the discovery of the art itself." The restoration of peace did not diminish the number of newspapers in the United Kingdom, which in 1815 amounted to 254, viz.: 55 in London (15 daily), 122 in other parts of England and Wales, 26 in Scotland, and 49 in Ireland; and Cobbett's weekly "Political Register," established at the beginning of the century, was sold in 1817 to the extent of 50,000 copies per week. The cessation of the war, however, favored a revival of the representation of literature and art in the press. The "Examiner" paid even more attention than ever to literature, and a series of essays, written by Hazlitt in conjunction with Leigh Hunt for that journal, were published in 1817 under the title of the "Round Table." Mr. Barnes, whose talent was, next to the enterprise of Mr. Walter (the son of the original founder), one of the chief instruments in building up the fortune of the "Times," was called to the editorial chair of that journal at about the same time. In 1822

Thomas Moore was invited by Barnes to write leading articles, but declined the proposal; and Southey is also said to have declined the editorship of the "Times," with a salary of £2,000. The growth of English journalism, although most perceptible in the "Times," soon pervaded all classes of newspapers. On Jan. 29, 1829, the "Times" came out on a double sheet, composed of 8 pages of 48 columns. The reform excitement greatly increased the sale of the "Times" and of other journals, and nearly 13,000,000 copies of newspapers passed through the post office in 1830. In 1832 there was one newspaper to every 55,000 of the population, against one to 90,000 in 1821, and one to 110,000 in 1782. The editors of various unstamped newspapers were prosecuted during the discussion on the reform bill. The most violent of them was the editor of the "Poor Man's Guardian," who called William IV. and his ministers "William Guelph and his minions." The "True Sun," edited by the Rev. Mr. Fox, subsequently M. P. for Oldham, now counted Laman Blanchard and Leigh Hunt among its writers, and Charles Dickens among its parliamentary reporters. Douglas Jerrold's and Thackeray's newspaper connections also date from this period. In 1833 the number of journals published in the United Kingdom was about 400, and of copies passing through the post offices of Great Britain and Ireland nearly 42,000,000.—A new stimulus was given to newspaper enterprise in 1836 by the reduction of the stamp duty from 4 pence to a penny, causing in the first year of the full operation of the new act an increase of 8,000,000 in the stamps issued, and of 61 in the number of newspapers, which a year before the reduction was 397, and a year afterward 458. Fourteen of the new journals were established in London alone, including an ultra-liberal morning newspaper called "The Constitutional" (in place of the old "Public Ledger"), of which Laman Blanchard was the editor, Mr. Thornton Hunt the sub-editor, Douglas Jerrold the dramatic critic, and Thackeray the Paris correspondent. But it was soon discontinued, together with many of the others, while the "Public Ledger" was revived as a price-current. A socialist organ was published by Robert Owen, the "New Moral World," and a Chartist organ by Feargus O'Connor, the "Northern Star." The "Economist," celebrated for its collections of financial and commercial statistics and disquisitions, was established in 1837 by Mr. John Wilson (died in 1860), whose ability, first manifested in the conduct of this journal, raised him to the secretaryship of the treasury. The "Illustrated London News" was founded in 1842 by Mr. Herbert Ingram, who remained its principal proprietor until his death. He perished in a steamboat accident on Lake Michigan in 1860. The stamps on newspapers in the United Kingdom increased from 65,000,000 in 1843 to 71,000,000 in 1844. The railway mania produced in London many newspapers devoted to railway matters, their number amounting to about 30 in 1845, but only 3 of them (the "Railway Times," "Railway Journal," and "Railway Record") survived the crisis of 1846. The "Daily News" was established in 1846, under the editorship of Charles Dickens, who published in it his "Sketches from Italy," but soon yielded his place to Mr. Charles Wentworth Dilke, who established in connection with it the "Express" evening journal. The "Daily News" soon attained a circulation second only to that of the "Times," but has since declined. The ordinary daily circulation of the "Times" rose from 23,000 in 1846 to 29,000 in 1848, and to 36,000 in 1852; and the number is largely increased, and sometimes nearly doubled, on the occurrence of any event of great public interest. In 1854, during the Crimean war, the average daily circulation of the "Times" was 51,648, about double the aggregate of all the other daily morning journals, which was only 26,268. The number of newspaper stamps issued in 1854 in the United Kingdom was about 120,000,000. A powerful impulse was given to the press in 1855 by the total abolition of the stamp duty as a tax, making it optional with the publishers to use the stamp as a means of paying postage on such copies of their impressions as were to be sent through the mails. The following were the most widely circulated newspapers in the United Kingdom at that period:

London daily papers.—Times, 16,000,000; Morning Advertiser, 2,400,000; Daily News, 1,500,000; Morning Herald, 1,160,000.

London weekly papers.—News of the World, 5,[illegible]; Illustrated London News, 5,680,000; Lloyd's Weekly Newspaper, 5,570,000; Weekly Times, 3,900,000; Reynolds's Weekly Newspaper, 2,500,000; Weekly Despatch, [illegible]; Bell's Life in London, 1,160,000.

English country papers.—Liverpool Mercury, [illegible]; Leeds Mercury, 785,000; Stamford Mercury, [illegible]; Birmingham Journal, 650,000; Manchester Examiner, [illegible]; Staffordshire Advertiser, 425,000; Leeds Times, [illegible].

Welsh papers.—*Yr Amseran*, 287,700; Monmouthshire Merlin, 110,000.

Scotch papers.—Edinburgh: North British Advertiser, 808,000; Scotsman, 359,000. Glasgow: Saturday Post, 727,000; North British Mail, 565,000; Herald, [illegible]. Aberdeen: Journal, 200,000.

Irish papers.—Dublin: Telegraph, [illegible]; Daily Express, 748,500; Saunders's News Letter, [illegible]; Freeman's Journal, 480,000. Belfast: Northern Whig, [illegible]; Daily Mercury, 210,000. Cork: Constitution, [illegible].

After the abolition of the stamp duty, the 5-penny papers, including recently the "Times," reduced their price to *4d.*, the 6-penny weekly papers to *5d.*, and the 3-penny papers (which were established on the abolition of the 4-penny tax in 1836) to *2d.*; while a great number of penny weekly and daily papers have sprung up in the United Kingdom, particularly in London. The principal daily penny papers in London, consisting each of 8 pages, are the "Standard," the "Daily Telegraph," and the "Morning Star;" the two last issuing evening penny papers or editions under the name of "Evening Telegraph" and "Evening Star." Some of these penny papers have an immense circulation, and the "Standard" has asserted that on one occasion it printed 100,000 copies. The sale of the two editions of the "Star" for some time ranged between 12,000 and 13,000, and is now [illegible] about 30,000. There are 10 or 12 local papers in various parts of London which enjoy a considerable circulation, as the "City Press," the "Clerkenwell News," the "Holborn Times," &c. Beside the "Times," the leading full-priced daily journals are the "Morning Advertiser," "Morning Chronicle," "Morning Herald," "Morning Post," and "Public Ledger," each consisting of 8 pages (price 4*d.*), and the "Daily News" (price 3*d.*). Mr. Thornton Hunt, who was for some time managing editor of the "Daily News," states that its staff consists of a chief editor, at 18 guineas a week; sub-editor, 12 guineas; second sub-editor, 10 guineas; foreign sub-editor, 8 guineas; writers, about 4 guineas a day, £25; 16 parliamentary reporters, one at 7 guineas, and the others at 5 guineas per week, £87 7*s.* This estimate is somewhat above the real mark, as are the salaries said to be paid to foreign correspondents. Each paper of any standing must have an establishment at Paris. The head of this, who bears the title of correspondent, is paid 10 guineas a week; a reporter, 3 guineas; office expenses and cost of Paris papers, 5 guineas a week. The agent at Boulogne, who transmits the despatches, has 1 guinea; and the expense of postage is also considerable. A Madrid correspondent is also required at 4 guineas; one at Rome, 4 guineas; Naples or Turin, 3 guineas; Lisbon, 3 guineas; Berlin, 5 guineas; beside correspondents at many other places, who are paid according to the importance of their posts. Then there must be a correspondent at every important seaport in the kingdom, whose duty is to forward any news arriving there, with all possible promptness. A large part of the papers is occupied by reports of the proceedings in the courts, and the corps of reporters for this purpose is large and costly. Public meetings also have to be reported, either by members of the parliamentary corps, or by reporters specially engaged. A scientific man is employed to correct the reports of medical evidence and judicial investigations, where chemistry, botany, or physiology is involved. The city editor has 7 guineas a week for his daily money article; 2 market reporters have each 1 guinea, and 7 other markets are reported at a less rate. The salaries paid for theatrical, musical, and other articles on art, are comparatively small, and vary considerably. There must also be subscriptions to a variety of special publications, and a great number of foreign, colonial, and provincial papers must be had, either by exchange or subscription, amounting say to 150 a day, which are read and their news made up by the sub-editors. The paper must also have friends who will bring intelligence from the various government offices. The news at the clubs, especially the Reform and the Carlton, must be had, and paid for. The expense of sending reporters and correspondents to distant meetings and inquests, and of getting their despatches, is also heavy; sometimes a special railway engine being employed, at a cost of £25 or £30. Railway parcels of news cost from £5 to £7 a week. The overland mail costs about £4,000 a year; but by sharing among 4 papers it is reduced to £20 a week each. The electric telegraph is expensive; but though the charges are high, it is not so costly to the papers as in America, for the reason that it is less used. The expenses of the printing and publication offices also make a serious item. The aggregate weekly expenses Mr. Hunt sets down at £520. The full-priced evening papers are the "Globe," the "Evening Herald," and the "Sun" (4*d.*). The "Express" and "Evening Journal," branches of the "Daily News" and "Morning Herald," sell for 2*d.*; and next come the penny evening papers. The "London Gazette" appears twice, and the "St. James Chronicle," "Record," and "Evening Mail" thrice a week. Of weekly papers there are in London upward of 140; but although not all political, they are all more or less newspapers. They include "Punch" and the most celebrated weekly literary organs, as the "Athenæum," "Saturday Review," "Spectator," "Press," &c.; and many papers devoted to special branches of science and art and of occupations and classes of society, as the "Builder," "Bell's Life in London" (sporting), the "Lancet," and many religious papers. Among the weekly papers which reach the highest circulation are the "Illustrated London News," "News of the World," and "Illustrated Times." The "Weekly Despatch" contains an immense quantity of reading matter, and each single number of it weighs 3¾ oz. It has suffered from the competition of low-priced papers, but is still in a prosperous condition, owing to its abundance of advertisements, for which it charges higher prices than any other weekly paper excepting the "Illustrated London News." Most of the cheap weeklies are ultra liberal in politics. Their joint circulation is between 400,000 and 500,000 weekly. The total number of newspapers, daily and weekly, in the United Kingdom, was in 1860 upward of 800 (in round numbers, 600 in England, 100 in Scotland, and 100 in Ireland), and about 70,000,000 copies pass through the post office annually, irrespective of a great number sent in parcels by railway and circulated privately. "The Times" continues, in the midst of so many political and social changes, at the head of this vast organization of English journalism. Beside being the leading organ of public opinion in England, it is the chief medium of advertisements. The daily issue of the "Times" is estimated in 1861 at between 50,000 and 60,000. —French Newspapers date their origin from the publication of the *Mercure François* (1605–1645), a kind of historical compilation. Their more immediate prototype, however, was the *Gazette* issued by Théophraste Renaudot in 1631, and continued under the name of *Gazette des recueils* and *Gazette de France* till about 1789, appearing generally once, and for some time twice a week; and in the latter part of its existence, when beside political news it contained advertisements and financial accounts, it appeared daily. A poetical newspaper, which chiefly treated of local gossip and scandal, was published by Loret for about 15 years during the second half of the 17th century, having been first called into life by the desire of Mlle. de Longueville, afterward duchess of Nemours, to know what was going on in Paris. The *Mercure galant* (1672), a species of literary journal, was succeeded by the *Nouveau Mercure* and *Mercure de France*, which last prolonged its existence until 1815. In 1758 Mme. de Pompadour induced Marmontel, after the death of the previous editor, his friend Boissy, to conduct the *Mercure*, and D'Alembert and other eminent men are believed to have written for it. The *Journal étranger*, edited by the abbé Arnaud and Fréroin, and having among its contributors Rousseau, Grimm, and Prévost, existed till 1763, when Arnaud became one of the editors of the *Gazette de France* at a salary of 5,000 francs a year, his coadjutor Suard receiving the same amount. The *Moniteur*, the official organ of the government, was founded in 1760, and treated of moral and political subjects; while some of its contemporaries, especially the notorious *Nouvelles à la main*, contained, beside political news, a budget of scandalous intelligence. From the latter end of the 17th century to the middle of the 18th, many weekly and monthly journals were published in Paris, chiefly of a literary and scientific character, with which the most eminent men of France were connected. The first daily political newspaper was the *Journal de Paris, ou Poste du soir* ("Evening Post"), published in 1777, which maintained itself till 1825. The first political editor who attracted general attention was Linguet, who was connected from 1774 till 1783 with the *Journal de politique et de littérature*, better known under the title of *Journal de Bruxelles*, although it was issued in Paris. Another famous French newspaper of that period was the *Courrier de l'Europe*, published in London (1776–'89) twice a week for 6*d*. a number, and on the staff of which were Morande, Brissot de Warville, and the count de Montlosier. The revolution gave a powerful impulse to French journalism, and Mirabeau's *Courrier de Provence* (1789) became the precursor of thousands of different newspapers. "In the space of a few months," says Louis Blanc, "France was inundated with printed sheets of every tone and description—weekly, monthly, quarterly; royalist, radical, moderate, and frantic; distilling poison and emitting abuse, disseminating error, encouraging calumny, proclaiming facts, echoing every expression of passionate anger, irradiating every awakening idea." This saturnalia of revolutionary journalism found its climax in Marat's *Ami du peuple*, and ended with the 18th Brumaire, after which all journals excepting 13 were suppressed by the first consul, and under the empire only 5 were permitted to appear, viz.: the *Moniteur*, *Gazette de France*, *Journal de Paris*, *Journal des débats* (under the temporary name of *Journal de l'empire*), and *Petites affiches*. The condition of the press did not much improve after the restoration. The censorship was replaced in 1825 by securities to be furnished by each proprietor of a Parisian journal to the extent of 200,000 francs, and somewhat less in the provinces. The increase of the stamp duty from 5 to 10 centimes caused the price of the leading journals to be raised from 72 to 80 francs a year. The *Journal des débats* was originally founded in 1789 by Barrère and Louvet, passed in 1800 into the hands of Louis François Bertin the elder, and has since remained the property of the Bertin family. It was from the beginning conspicuous for the support of law and order and of existing authorities. After the restoration, however, it advocated a moderate liberalism in politics. Geoffroy became early attached to its literary department, and the *feuilletons* (a department of journalism peculiar to the continent of Europe) of the *Débats* have maintained to this day their celebrity. The scientific and learned department of the *Débats* has also enjoyed since 1818 a high reputation. One of its early contributors was Royer-Collard. In literature the *Débats* was the first to hail the advent of the romantic school. Among the other prominent journals during the latter part of the restoration was the *Globe*, which counted among its contributors Guizot, Cousin, Jouffroy, and the duke de Broglie, and afterward Rémusat, St. Marc Girardin, Carnot, and other scholars and writers of a younger generation. Many of its writers were brought into political prominence by the revolution of 1830, after which the *Globe* continued to appear for a few years as an organ of St. Simonism. The *Constitutionnel*, established in the early period of the restoration, was constant in its opposition to the elder Bourbons, and reflected in a great measure the views of aspiring and influential politicians of the higher middle class and of the military and civil aristocracy created by Napoleon. Thiers and Mignet wrote largely for this journal until toward the end of the restoration, when they found a more energetic outlet for their liberal opinions in the *National*; and shortly after the July revolution the *Constitutionnel* lost its political influence. The *National* gained importance about 1828 through the influence of Louis Philippe, Talleyrand, Laffitte, and other opponents of the elder branch of the Bourbons; and its first editorial staff comprised Thiers, Mignet, and Carrel. It contributed powerfully to the overthrow of the government of Charles X., soon after which it became, under the sole editorship of Carrel, equally opposed to that of his successor. Carrel was succeeded in the editorial chair by Bastide, and the latter by Armand Marrast; and the *National* took as prominent a part in the overthrow of Louis Philippe as it had in that of Charles X. The foundation in 1835 of the *Presse*, by Émile de Girardin, at 40 francs a year, half the price of the leading journals, called the cheap press into existence. A powerful means of the success of the *Presse* and of the *Siècle*, which also reduced its price to 40 francs, was the publication of novels in their *feuilletons*, for which the services of Eugène Sue, Alexandre Dumas, and other celebrated writers were enlisted at extravagant prices. The fortunes of the *Constitutionnel* were also revived under the editorship of Dr. Véron, by the reduction of its price, and by the publication in its *feuilletons* of *Le Juif errant*, for which he paid Eugène Sue 100,000 francs. M. de Ste. Beuve was for a long time its literary critic. Under the direction of Véron, the *Constitutionnel* increased its circulation to upward of 20,000; and the general influence of the cheap press, and its handmaid the *feuilleton*, increased the aggregate of subscribers from 70,000 in 1835, when the number of the principal daily journals in Paris was 20, to 180,000 in 1845, when there were 26. The *Siècle* became the favorite paper of the lower middle classes, and reached in 1846 a circulation of upward of 40,000. Within 8 months after the revolution of 1848, about 400 new journals sprang into existence, many of which were of an ultra socialistic or democratic character. The principal organ of the moderate republicans was still the *National*, and of the more radical party the *Réforme*, founded by Cavaignac and edited by Flocon. After the bloody days of June, 1848, the newspapers were again placed under the necessity of depositing security and paying stamp duty, and many journals of considerable circulation were thereby obliged to stop. The estimated daily circulation of newspapers in Paris in 1850 was, of republican organs, 129,000; Orleanist and legitimist, 83,000; Napoleonist, 65,000; total, 277,000. The *coup d'état* of Dec. 2, 1851, terminated the existence of the celebrated *National*, as well as of many other liberal organs. Among the principal journals which have since been published in Paris, the following 10 commanded in 1855 an aggregate circulation of 161,000: the *Presse*, 41,000; *Siècle*, 36,000; *Constitutionnel*, 26,000; *Pays*, 16,000; *Patrie*, 15,000; *Journal des débats*, 9,000; *Univers*, 6,000; *Assemblée nationale*, 5,000; *Union*, 4,000; and *Gazette de France*, 3,000. The *Constitutionnel*, which was believed to have favored the *coup d'état* under the inspiration of Achille Fould, has passed as well as the *Pays* into the hands of the bankers Mirès since 1852. The *Presse*, with which since 1857 M. de Girardin has had no connection, still shares with the *Siècle* the leading position among the Parisian journals as far as the number of subscribers is concerned. The *Journal des débats* still continues to be the most intellectual and dignified exponent of French journalism. Nearly one half of the total number of periodical publications in France are issued in the metropolis. The number of Parisian journals which treat of politics and public economy, and are consequently under bonds to the government and liable to a stamp duty of 6 centimes, is estimated in 1861 at about 40, and the non-political publications at nearly 600. The following are the principal political daily journals of Paris, arranged in alphabetical order: *Charivari* (humorous), *Constitutionnel*, *Débats*, *Gazette de France*, *Messager*, *Monde* (ultramontane, successor of the *Univers*, suppressed in 1860), *Moniteur universel* (official government organ), *Patrie*, *Pays*, *Presse*, *Siècle*, *Opinion nationale*, and *Union* (uniting the former journals, *France quotidienne*, and *Écho Français*). "Galignani's Messenger," published daily in English, and giving copious extracts from the journals of London as well as of Paris, was established in 1815. The journals devoted to dress and fashion number about 50, those to medical science and treatment nearly 30, and those to industry upward of 100. Almost all branches of industry and trade have their special organs, as *La lumière*, devoted to photography; *L'innovateur*, relating to shoe and boot making; *Le moniteur de l'épicerie*, groceries; *Le garde-meuble*, furniture; while a large number of journals are exclusively devoted to advertisements. *Figaro* is a satirical semi-weekly paper. The principal illustrated newspapers are the *Illustration*, *Le monde illustré*, *L'univers illustré*, and *Le journal pour tous*, the aggregate circulation of which is about 150,000. The total number of daily and periodical journals published in France in 1861 is about 1,400, nearly 1,100 being devoted to art, science, literature, industry, commerce, and agriculture, and the remainder to political subjects and public economy; the former are exempt from giving bonds and from the stamp duties, while the latter must furnish securities to the government to the extent of 50,000 francs for all journals which appear oftener than twice a week, and of 30,000 francs for all periodical publications issued twice a week or at longer intervals. This is the general regulation in the departments of the Seine, Seine-et-Oise, Seine-et-Marne, and Rhone, so as to include the press of Paris and Lyons. The stamp duty is 6 centimes for each paper in the departments of Seine and Seine-et-Oise (Paris and Versailles), and 3 centimes in the other departments. Foreign newspapers are subjected to the same regulations. The journals published in the seaports of France are better known abroad than the other provincial papers, and contain much shipping and commercial information. This is particularly the case with the *Sémaphore de Marseille*, which circulates extensively in the Mediterranean and Levantine ports, and the *Journal du Hâvre*, which is well known in adjoining countries. The journals published at Lyons possess more political importance than any of the other provincial French journals, during periods when the press is free, and when political excitement runs high; this is owing to the prominent part which Lyons has always taken in revolutionary eras, and to its importance as the principal manufacturing city of France. There are however well conducted journals in Bordeaux, Toulouse, Grenoble, Avignon, Montpellier, Nantes, Orleans, Rouen, Lille, Metz, Strasbourg, and in all the principal cities and towns of France.—Italian newspapers are traced to the early *gazettas* of Venice of the 16th century, many volumes of which in manuscript are preserved in the Magliabecchian library, while one printed copy dated 1570 is in the British museum. In modern times the principal newspapers consisted at first only of those serving as official organs of the respective authorities, as the *Diario di Roma* and *Gazzetta di Napoli.* The *Voce della verita*, published in Modena (1831), was conspicuous for its advocacy of ultra conservative principles; and the *Antologia*, published about the same period in Florence, was equally conspicuous for its support of ultra liberal tendencies, and counted among its contributors Mazzini and other young patriots. The total number of Italian newspapers in 1836 amounted to 171, and in 1845 to 205. After the accession of Pope Pius IX. in 1847, Italy produced an enormous crop of new journals, chiefly of a revolutionary character, which were discontinued after the reaction in 1849; and with the exception of Sardinia, the Italian press was again put under restraint until 1859–'60, when a new career opened for Italian journalism. Sardinian newspapers have been free since 1848. Among the principal daily journals of Turin are the *Gazzetta Piemontese*, the official organ of the government; the *Opinione*, which supports the administration; the *Diritto*, the exponent of the most advanced and liberal party of Sardinia, edited by Valerio; the *Unione*, independent of party, but national in sentiment; and the *Gazzetta del popolo* (with 7,000 subscribers), the smallest and cheapest of all the newspapers, and the most influential with the people. Among other daily journals are the *Independente*, *Espero*, *Staffetta*, and the *Fischietto*, which last is a kind of "Punch." The principal journals of Genoa are the *Gazzetta di Genova*, the official organ; the *Corriere mercantile*, the representative of the government party; and the *Italia del popolo*, the organ of the republican party. There are also newspapers in most of the other Sardinian cities and small towns.—Spanish newspapers were preceded by periodical publications of extraordinary news, which were often printed or recited in verse, and offered for sale chiefly by blind persons; hence they were called *romances de ciegos.* The first regular newspaper was the court journal, *Diario de Madrid*, established about the middle of the 18th century. The press soon rose to a certain degree of importance, and exercised considerable influence during the war of independence, and especially after the establishment of the liberty of the press in 1834, when nearly 20 political journals sprang into existence in Madrid alone, more than 40 being published there in 1844, the *Heraldo* (*moderadisto* organ) commanding the largest circulation (7,000 daily). Satirical and humorous papers have played an important part in the history of Spanish journalism, and many of the ablest writers are engaged in the conduct of literary, scientific, artistic, and religious journals, the subscription list of one of the latter (*El Catolico*) having comprised at times about 14,000. The number of daily journals published at the beginning of 1861 in Madrid was about 30, the most important of which are the *Clamor publico* and *España.*—Portuguese newspapers are confined to the organ of government, the *Diario do governo*, and some half dozen other journals published in Lisbon, and to a corresponding number in Oporto and other cities.—German newspapers were preceded by periodical publications of news, a specimen of the oldest of which, dated in 1495, is preserved in the university library of Leipsic. The first regular series of weekly journals appeared at Frankfort-on-the-Main, the *Frankfurter Oberpostamts-Zeitung*, which is still in existence as a daily newspaper, having been established there in 1616 under the auspices of the postmaster, after the model of a journal which had been founded in 1615 by the bookseller Emmel. This was followed by newspapers in all the principal cities of Germany. Among the most widely circulated journals of the 18th century was *Der Hamburgische Correspondent*, founded in 1714; and at the close of the century appeared the Augsburg *Allgemeine Zeitung*, which has since become the leading journal of Germany. Among the eminent men connected with the editing of newspapers at the beginning of the 19th century were Kotzebue (*Russisch-Deutsches Volksblatt*), Niebuhr (*Der Preussische Correspondent*), and Görres (*Der Rheinische Merkur*). The French revolution of 1830 called into existence several radical journals, as Siebenpfeiffer's *Westbote*, Wirth's *Deutsche Tribune*, and *Der Freisinnige* by Rotteck and Welcker; but most of them were suppressed in 1833. Among the ablest journals published between that period and the revolution of 1848 was the *Rheinische Zeitung*, established at Cologne in 1841, where it continued until 1850. The number of newspapers published in Germany at the time of the revolution (1848–'9) has not since materially diminished, and is estimated at the beginning of 1861 at about 1,400. The following are the principal newspapers of the chief cities of Germany: in Augsburg, the above mentioned *Allgemeine Zeitung;* in Berlin, the *Vossische Zeitung* (circulation about 15,000), the favorite paper of the middle classes; the *Spenersche Zeitung* (about 6,000), established originally by order of Frederic II., generally conservative and semi-reactionary; the *Neue Preussische Zeitung* (about 7,000), the organ of the high tory or feudal party; the *Volkszeitung* (24,000), a small daily democratic sheet of great influence as an organ of the working classes; the *Nationalzeitung* (about 7,500), democratic, one of the best German papers, and having next to the Augsburg *Allgemeine Zeitung* the best foreign correspondence; in Cologne, the *Kölnische Zeitung* (22,000), moderately liberal, edited with great ability, and strongly anti-Austrian; in Bremen, the *Weser-Zeitung*, democratic, and conducted with much spirit and ability; in Leipsic, the *Deutsche allgemeine Zeitung*, published by Brockhaus, edited with great talent, and possessing excellent foreign correspondence; in Hamburg, the *Börsenhalle*, *Hamburger Nachrichten*, and *Correspondent*, all very old and solid papers, chiefly commercial, and in the main liberal, although not accustomed to express decided opinions; in Frankfort-on-the Main, the *Frankfurter Journal* and the *Ober-Postamts-Zeitung*, journals of little ability, but often containing semi-official information of importance; in Vienna, the *Wiener Zeitung*, the official organ of the government; the *Oestreichische Zeitung*, *Donau-Zeitung*, *Wanderer*, *Ostdeutsche Post*, and *Presse*, generally containing excellent intelligence from the East, but in other respects of little importance; in Stettin, the *Ostsee-Zeitung*, an organ of free trade; and in Hanover, the *Zeitung für Norddeutschland*. —Russian newspapers are indebted for their origin to Peter the Great, who took a personal part in the establishment of the first Russian journal, published at Moscow in 1703. Journals appearing once or twice a week, and devoted to general and special news, are published in almost every chief city of the different Russian provinces; but the two principal seats of Russian journalism are St. Petersburg and Moscow. The daily journals of St. Petersburg may be divided into two classes, those which express on many occasions the opinions of the government, and those which are independent. There is no journal in Russia, however, which corresponds exactly to the French *Moniteur*. The "Gazette of the Senate" is official in regard to the publication of laws, ukases, and other regulations of a strictly administrative character. The *Journal de St. Pétersbourg*, published in French, was under former reigns, and is still generally considered, an organ of the department of foreign affairs. Another daily journal of the same name is now published in Russian, and a third in German. During the reign of Nicholas the "Northern Bee" had a considerable influence as the organ of the then all-powerful secret police, by which it was subsidized; but since the accession of the present emperor, it has been on the wane. The *Invalide Russe*, connected to some extent with the establishment for invalid soldiers, has a semi-official character, particularly in military information and statistics. The "Police Gazette" of St. Petersburg relates chiefly to police regulations. Among the other daily journals are the "Son of the Fatherland," the "St. Petersburg News," and the "St. Petersburg Commercial News," which last is published both in Russian and German. The prominent daily journals of Moscow are: the "Russian Messenger," the "Moscow News," the "Moscow Gazette," and the "Police Gazette." In the Baltic provinces, the cities in which are peopled chiefly by persons of German descent, there are a few daily journals published in German, particularly in Riga. The journals of Finland are published in Swedish, and those of Poland and Lithuania in Polish. The principal of the latter are the "Warsaw Courier," "Daily Gazette," and "Morning Gazette," all published in Warsaw. In Kasan a journal is published in Tartar, and in Astrakhan one in Kalmuck. Odessa, on account of the cosmopolitan character of the population and of her commercial relations, has daily journals in French and Italian, and the "Odessa Messenger" enjoys some reputation. Since the adoption of a more liberal policy by Alexander II. new daily journals have sprung into existence in St. Petersburg and Moscow and other parts of the empire. Of Polish journals published in non-Russian provinces, the Cracow "Time" (*Czas*) is the most important; other principal places of publication are Posen and Lemberg. A Hebrew newspaper appears at Lyck in East Prussia, chiefly for the benefit of the Jewish population of the neighboring Polish and Lithuanian provinces, under the title of *Hammagid* ("The Reporter").—The first regular series of Hungarian newspapers was published in Latin in 1721, and the first in the vernacular tongue appeared in 1781 in Presburg. The principal Hungarian journals shortly before the revolution of 1848–'9 were the *Jelenkor* ("Present Age"), *Világ* ("Light"), *Budapesti hiradó* ("Buda-Pesth Intelligencer," edited by Count Emil Dessewffy), *Pesti hirlap* ("Pesth Journal," edited by Kossuth), and the *Pesther Zeitung*, in German. Among the most celebrated journals which sprang up during the revolution were the *Köslöny* ("Organ"), the revolutionary *Moniteur*, and *Kossuth hirlapja* ("Kossuth's Journal"), edited by Bajza. Among the principal newspapers which have appeared in Hungary since the revolution are the *Budapesti napló* ("Buda-Pesth Diary"), *Vasárnapi ujság* ("Sunday News"), edited by Pakh, and the *Pesther Lloyd*, in German. The movements of 1860 gave rise to a large number of new journals, all of a liberal character. The press of Bohemia, Transylvania, Croatia, and neighboring countries, having relapsed after its temporary activity during the revolutionary excitement of 1848–'9 into insignificance, also assumed a new importance at the close of 1860. —The first Turkish newspaper appeared in French in 1795, but the actual founder of journalism in Turkey was Alexandre Blacque, who established at Smyrna in 1825 the *Spectateur d'Orient*, which, under its subsequent title of *Courrier de Smyrne*, exerted considerable influence during the Greek revolution. The official journal of the government has appeared in French since 1831 under the title of *Moniteur Ottoman*, and in Turkish since 1832 under that of *Taquimi vagâi*. The leading Constantinople journals in 1861 are the *Journal de Constantinople* in French, and the *Djeridei ha-*

vadis in Turkish; beside which there are several other papers in French, Italian, modern Greek, and Armenian, published in various parts of the Ottoman empire, chiefly at Constantinople, Smyrna, Beyrout, Alexandria, and Cairo. A modern Syrian newspaper has been published by missionary enterprise since 1850 at Ooroomiah. The Armenians display more journalistic ability than most other oriental peoples, and have in 1861 over 30 daily and periodical journals, some of which are devoted to science and literature, published chiefly in Constantinople and Smyrna; Armenian journals have existed at various periods in Vienna, Venice, Transcaucasia, Calcutta, Madras, and Singapore, some of which are still in existence.—The origin of Greek newspapers dates from the establishment of national independence, and several appeared simultaneously in 1824 in different cities. The centre of Greek journalism is Athens. The number of periodicals published in Greece in 1861 is more than 100. Those best known abroad are the Ελπις ("Hope") and Αιων ("Age"), published in Athens, as well as the *Spectateur d'Orient*, a semi-monthly journal published there in French since 1852. There are journals published at Nauplia, Patras, Syra, and in the Ionian islands; there are several publications in English and Italian as well as in Greek. A Greek newspaper was established in 1860 in London, and is actively supported there by Greek merchants and by English scholars.—Newspapers were established in Belgium before they were known in Great Britain, France, or Germany. The earliest appears to have been the *Nieuwe Tydinghen*, published at Antwerp by Abraham Verhoeven in 1605. No copy of this journal anterior to 1619 is now known to exist, and it is somewhat uncertain whether it was from the beginning a regular periodical. It was followed by the *Gazette extraordinaris Port-Tydinghen*, which was published between 1637 and 1644, and was the foundation of the *Gazette van Antwerpen*, which continued till 1827. At Brussels there were at least two newspapers in existence between 1637 and 1645. The *Annales politiques* of that city was a famous journal of the last century, and the Austrian government subscribed for 1,200 copies of it annually. It was so popular that a pirated edition was regularly printed and circulated. The most noted of the Belgian journals at the present day are the *Moniteur Belge*, the official paper, and the *Indépendance Belge*, an organ of the liberal party, both established at Brussels in 1831; the latter has about 9,000 subscribers. The independent newspapers of largest circulation are the *Écho de Bruxelles* and the *Journal de Belgique*, both published at Brussels. Holland has numerous newspapers, but none of much political importance. The principal ones are the *Allgemeene Handelsblad* of Amsterdam; the *Courant* of Haarlem; and the *Staats Courant* and the *Journal de la Haye*, both published at the Hague. Switzerland in 1849 had 77 German newspapers, but of the number of those in the French language we have no account.—The earliest newspaper in Sweden was the *Ordinarie Port-Tidende*, established in 1643; but the journals had little political influence till 1830, when the *Argus* appeared at Stockholm. Since then the *Fäderneslandet* and the *Aftonbladet* have been the principal journals of the capital, the former conservative, the latter liberal, with at one time 5,000 subscribers. There is a newspaper published in every considerable town of the kingdom, and the total number in 1850 was 118. The Christiania *Intelligentsseddler*, founded in 1763, is the oldest newspaper in Norway. *Der Constitutionelle* at Bergen is the organ of the government; and the *Morgenblad*, established at the same place in 1819, is the journal of the popular party. The oldest newspaper of Denmark is the *Berlingske Tidende*, which was first published in 1749 in the German language, though it now appears in Danish. Until 1830 Copenhagen had but two journals, and those of little influence. In 1849 the number of political papers in the kingdom was 86.—In China, a species of newspaper has existed at Peking for centuries under the title of *King Chau*, or court transcripts, which is commonly called by Europeans the "Peking Gazette." It is compiled from the papers presented before the general council of the empire, and constitutes the principal medium available to the people for ascertaining what is going on in the country. Every morning ample extracts from the papers decided upon or examined by the emperor, including his own orders and rescripts, are placarded upon boards in a court of the palace, and form the materials for the annals of government and the history of the empire. Couriers are despatched to all parts of China bearing copies of these papers to the high provincial officers. Anybody is permitted to print these documents without note or change, and to sell them to the people. This "Gazette" is very generally read and talked about by the gentry and educated people in the cities. In the provinces thousands of persons find employment in copying and abridging it for those who cannot afford to buy the complete edition. In 1827 an English weekly newspaper, the "Canton Register," was established at Canton; and in 1835 a similar journal, the "Canton Press," made its appearance. At present the "North China Mail" at Shanghai, and the "China Mail" at Hong Kong, are the principal English newspapers in that quarter. In the island of Penang the "Prince of Wales Island Gazette" was founded in 1805, suspended for some years, and revived in 1833. At Singapore, the "Singapore Chronicle" was established in 1823; at the same place in 1860 there were two English newspapers, the "Free Press" and the "Straits Times," both with small circulation.—In India, a newspaper called "Hicking's Gazette" was established at Calcutta in Jan. 1781; and in 1795 the Bengal *Hurkuru* made its appearance and still continues, the oldest of the Indian newspapers. It became a daily in April, 1819. Until 1835, however, the press in India was restrained either by a censorship or by the right assumed by the East India company of deporting to Europe obnoxious editors, of whom the most notable examples were those of the American William Duane, editor of the "World" at Calcutta, who was transported to England in 1794, for an inflammatory address to the army, and afterward returned to America and became an influential editor and politician; and of the Englishman James Silk Buckingham, editor of the "Calcutta Journal," who was sent home in 1823. A law drafted by Macaulay, and enacted by Sir Charles Metcalfe as governor-general in 1835, removed all arbitrary restrictions upon the press. On the outbreak of the sepoy mutiny in 1857, an act was passed prohibiting the use of the press except under a license from the government; this act, however, was by its terms limited to one year from date. The leading English journals now in existence in Hindostan are the "Friend of India" at Serampore, the "Englishman" at Calcutta, the "Athenæum" and "Spectator" at Madras, the "Herald" at Bangalore, the "Times," "Telegraph," and "Gazette" at Bombay, the "Gazette" at Delhi, the "Observer" at Poonah, and the "Chronicle" at Lahore. These are all of limited circulation compared with the newspapers of Europe and America, none except the "Friend of India" exceeding 1,000 copies. At Calcutta and at some other cities there are newspapers in the native languages; in 1846 there were 8 of these at Calcutta alone.—The first newspaper in Australia was the "Sydney Gazette and New South Wales Advertiser," founded in 1803 by George Howe. At present (1861) a great number exist in the various colonies, of which the principal dailies are: at Melbourne, the "Argus," with a circulation of 28,000, the "Age," and the "Herald," which is the government paper; at Sydney, the "Herald" and the "Empire," with each a circulation of about 7,000. In New Zealand in 1858 there were 14 English newspapers, and one in the native or Maori language. There are several published in Tasmania or Van Diemen's Land, at Hobarton and Launceston, and also several in the colony of the Cape of Good Hope. The first newspaper in the latter colony was the "South African Commercial Advertiser," established in 1824.—In Spanish America, the first newspaper was founded in Chili in 1812; and in 1855 the total number of periodicals in Mexico, Central and South America, was 192, distributed as follows:

Mexico	30	Bolivia	2
Central America	8	Chili	14
Havana	7	Buenos Ayres	6
Porto Rico	3	La Plata	4
St. Domingo	4	Paraguay	2
New Granada	43	Montevideo	4
Venezuela	3	Brazil	32
Ecuador	3		
Peru	27	Total	192

Four of these periodicals were published in English, 5 in French, 1 in German, 29 in Portuguese, and the rest in Spanish. The population among whom they circulated may be estimated at about 30,000,000. In Mexico the oldest newspaper is *El siglio XIX.*, which is published daily and supports liberal principles. The newspapers of Central America and of St. Domingo or the Dominican republic are official in character, and have a very limited circulation. Those of Havana and Porto Rico are restrained by the government from political discussions, and their contents are chiefly commercial or literary. Of the 32 newspapers of Brazil, 7 are published in Rio Janeiro, 6 in Pernambuco, and 2 in Bahia; one is in French and one in German. The principal daily newspapers of Rio Janeiro are *El jornal do comercio*, *Diario do Rio*, and *Correio mercantil.* The Brazilian press is respectable and well conducted, and pays due attention to public affairs. In Chili, there are 2 daily newspapers in Valparaiso, 2 in Santiago, and 2 in Copiapo, of which the most important is *El Mercurio* at Valparaiso, which is ably conducted and has a circulation of 2,000 copies. The chief newspapers of Buenos Ayres are *El nacional*, *El orden*, *La cronica*, and an English journal, the "British Packet." The only newspapers of Peru that deserve notice are *El comercio* and *El heraldo*, both dailies of considerable circulation. The press of New Granada is the freest, the most active, and most numerous of any of the Spanish American republics. In Bogota, the capital, there are 10 newspapers, of which one is official, one religious, one literary, and the others political, 2 being conservative and 5 liberal. Those which have the largest circulation are *El porvenir*, *El Neo-Granadino*, and *El tiempo*, all of which are liberal.—In the present British American colonies the credit of establishing the earliest newspaper belongs to the island of Barbados, where Samuel Keimer founded the "Barbados Gazette" in 1731. Thirty-one years afterward, in 1762, appeared the "Barbados Mercury," which continued till 1845. In the other British West India islands newspapers were introduced as follows: Grenada, 1742; Antigua, 1748; St. Kitt's, 1748; Dominica, 1765; St. Vincent, 1784. In July of the latter year the "Bermuda Gazette" was founded. In Canada, the "Quebec Gazette" appeared in 1765, and the "Montreal Gazette" in 1775. In Nova Scotia, the "Halifax Gazette" appeared in 1751, but was not firmly established till 1760. In New Brunswick, 2 or 3 newspapers were published at St. John's in 1782.—The first newspaper in the United States was issued at Boston, Sept. 25, 1690. It immediately attracted the attention of the colonial legislature, which declared that its publication was contrary to law, and that it contained "reflections of a very high nature." The authorities probably prohibited the further publication, for a second number does not seem to have been issued, and only one copy of No. 1 is known to be in existence, which is in the state paper office at London, and is a small sheet of 4 quarto pages, one of them blank. Its contents record passing occurrences, foreign and domestic. Richard Pierce was the printer and Benjamin Harris the publisher. In the same year Gov. Fletcher of New York caused a "London Gazette," containing intelligence of an engagement with the French, to be reprinted. On Monday, April 24, 1704, appeared the first number of the "Boston News Letter," a half sheet of paper 12 inches by 8, with two columns on each page. It was published and edited apparently by John Campbell, postmaster of Boston, a Scotchman and a bookseller. This journal continued to be issued weekly until 1776. It was followed by the "Boston Gazette," begun Dec. 21, 1719; and on the next day the "American Weekly Mercurie" was issued from the printing office of William Bradford at Philadelphia. On Aug. 18, 1721, James Franklin, elder brother of Benjamin Franklin, established at Boston the "New England Courant," which soon became involved in a violent controversy with the Rev. Increase Mather and other ministers on the subject of inoculation, which the clergy advocated, while the "Courant" denounced and ridiculed it. It also attacked the magistrates, and was unusually free in its remarks on public affairs. In 1722 the legislature interfered and issued an order forbidding James Franklin "to print or publish the 'New England Courant' or any other pamphlet or paper of the like nature, except it be first supervised by the secretary of this province;" a committee of the house having reported "that the tendency of said paper is to mock religion, and bring it into contempt, that the Holy Scriptures are therein profanely abused, that the reverend and faithful ministers of the gospel are injuriously reflected on, his majesty's government affronted, and the peace and good order of his majesty's subjects of this province disturbed by the said 'Courant.'" James Franklin's name was consequently taken from the paper, and that of Benjamin substituted. The latter was at the time but 16 years of age, and was an apprentice in the printing office. It was in the columns of the "Courant" that he began his literary career, and at this period he was one of the most frequent and pungent of its writers. Four years after the first publication of the "Courant," on Oct. 16, 1725, William Bradford, the founder of the "Mercurie" at Philadelphia, began the publication of the "New York Gazette," the first newspaper issued in that city. In 1754 there were 4 newspapers published in Boston, 2 in New York, 2 in Philadelphia, and the "Virginia Gazette" at Williamsburg, which was first issued in 1736 by William Parks. From 1754 to 1776 the number of journals increased considerably. In the latter year 7 were published in Massachusetts, one in New Hampshire, 2 in Rhode Island, 4 in Connecticut, 4 in New York, 9 in Pennsylvania, 2 each in Maryland, Virginia, and North Carolina, 3 in South Carolina, and one in Georgia—in all, 37. These were all weeklies, with the exception of the "Advertiser" of Philadelphia, which was issued twice a week. In 1800 the number of newspapers in the United States had increased to 200, of which several were dailies, the first daily having been the "Pennsylvania Packet, or the General Advertiser," called afterward the "Daily Advertiser," which continued to be issued daily from 1784 till 1837. During the revolutionary struggle the principal journal in Boston was the "Gazette," which was established in April, 1755, and was the main organ of the patriots. It was published by Edes and Gill, and was at first a crown half sheet printed in two pages folio, but about 1760 it was enlarged and printed on a whole demy sheet. Its office of publication became the habitual resort of the most distinguished political writers on the American side, among them James Otis, John Hancock, Joseph Warren, Thomas Cushing, Josiah Quincy, jr., and John and Samuel Adams. Every measure of the government was examined and criticized in its columns by these able politicians with freedom and severity, and with a prodigious effect on the popular mind. "No press in the country," says Buckingham, "exerted a more powerful influence over the feelings, opinions, and conduct of the people." It was in this journal that John Adams wrote under the signature of Novanglus his celebrated series of papers in defence of the colonial cause, the first of which appeared in Jan. 1775, and they were continued every week till April 19 of the same year, when the outbreak of hostilities at Lexington and Concord rendered further argument needless. On the same side in politics was the "Massachusetts Spy," edited by the intrepid Isaiah Thomas, the historian of American printing, who founded the paper March 7, 1771, and removed it to Worcester in 1775, where it is still published. In New York, during the revolution, Rivington's "Royal Gazette," established in 1778, attained a circulation in its first year of 3,600, and was a zealous and powerful supporter of the royal cause. It was discontinued soon after the peace of 1783. In 1797 was established the "Commercial Advertiser," now the oldest of New York newspapers; and in 1801 the "Evening Post," which was founded by William Coleman, a lawyer from Massachusetts, and has always been remarkable for the ability of its conductors, among whom in the past was William Leggett, and at the present time (1861) are William C. Bryant and Parke Godwin. Mr. Bryant's connection with the "Post" began in 1826. About the same time that the "Evening Post" was established in New York, another journal of high character and influence, the "National Intelligencer," was founded at Washington by Samuel Harrison Smith. With this paper Mr. Joseph Gales became connected in 1807, and continued its editor till his death in 1860. In 1812 he took into partnership his brother-in-law, Mr. William W. Seaton, by whom the journal is still edited. In Jan. 1818, it was issued as a daily. From 1800 to 1810 the number and circulation of American newspapers largely increased. By the census of the latter year it appeared that the number of journals was 859, of which 27 were dailies, and the total annual issue was 22,321,000 copies. In 1824 there were 11 daily newspapers in Philadelphia and 12 in New York, with a circulation varying from 1,000 to 4,000 copies. In 1828 the whole number had increased to 852, with a yearly issue of 68,117,796 copies. In 1830 the number was estimated at 1,000, one of which, the "Christian Advocate and Journal," a weekly Methodist paper, had in 1831 a circulation of 25,000 copies. The census of 1840 returned 1,631 newspapers, with a yearly issue of 195,838,673 copies; and in 1850 the number had reached to 2,800, with an annual circulation of 426,409,978 copies, or an average of 21.81 copies to each person in the population, and of 12.9 journals to every 100,000 inhabitants. The number of daily newspapers in 1850 was 254, with an average circulation of 3,200 copies each. No official statement of the number of journals in 1860 has yet been published, but there is reason to believe that the total does not much exceed that of 1850. The number of dailies in the large cities has been diminished by the absorption of the weaker ones by the stronger. In 1833 a "penny paper" called "The Sun" was established in New York by Benjamin H. Day. It was about 10 inches square, and being sold for one cent, grew rapidly into a circulation of 60,000 copies. The size was increased, and it is now a large and respectable journal, the only one of many rivals which has maintained itself as a penny paper. In 1835 Mr. James Gordon Bennett began the publication of the "New York Herald," at first as a penny paper, but afterward raised the price to two cents. Its circulation on Jan. 1, 1861, as stated by its publisher, was 93,840, and its average daily circulation during the month of January 85,308. On April 10, 1841, the "Tribune" was begun by Mr. Horace Greeley, and in Jan. 1861, had reached a circulation for the daily edition of 53,500, for the semi-weekly of 24,000, and for the weekly of 205,500, beside a special edition for California of 2,500. The "New York Times" was established in 1850 by Mr. Henry J. Raymond, and has a circulation of 50,000 daily, 25,000 weekly, and 12,000 semi-weekly. The total circulation of the New York dailies now exceeds 300,000 a day, while in 1835 it was not more than 10,000. The New York dailies formed a combination in 1855 and established the "Associated Press" company for collecting and distributing to the newspapers the latest news from all quarters by telegraph, at an annual expense of $200,000. Some of these papers, however, expend for extra despatches as much as $50,000 a year. Some of the weekly papers, as "Harper's Weekly," "Frank Leslie's Illustrated Newspaper," and the "New York Ledger" of Robert Bonner, have an immense circulation, that of the last having at times exceeded 400,000 a week. The religious newspapers, of which the earliest was the "Boston Recorder" established in 1815, are published once a week, and their circulation is very large. The chief of these published in New York are the "Observer," the organ of the Old School Presbyterian denomination; the "Evangelist," New School Presbyterian; the "Independent," Congregationalist; the "Churchman," Episcopal; the "Advocate and Journal," Methodist; the "Examiner," Baptist; and the "Christian Inquirer," Unitarian. In most of the large cities of the Union German newspapers are published, some of which have an extensive circulation. In New York a French daily newspaper, the *Courrier des États Unis*, has long been maintained, and there are several French newspapers in New Orleans. There are also Welsh, Spanish, and Dutch journals. In St. Louis a Croatian newspaper has been published, and a Chinese one in San Francisco.

NEWSTEAD ABBEY, the family seat of Lord Byron, situated on the verge of Sherwood forest, 8½ m. W. from Nottingham. The building was originally a priory of black canons, founded in 1170 by Henry II., and at the dissolution of the monasteries was granted by Henry VIII. to Sir John Byron. It was then a fine specimen of the early Anglo-Gothic order of architecture, unsurpassed in elegance of composition and delicacy of execution, and "stood embosomed in a happy valley," the slopes of which were covered by the broad oaks of Sherwood forest. The new possessor converted a portion of the building into a dwelling; and his successors have from time to time altered, embellished, or added to it, until it presents a singular mingling of opposite styles of architecture, the restorations generally savoring "more of the baron than the monk." The 5th Lord Byron, great-uncle of the poet, and a stern and desperate character, pulled down a large part of the house, cut down extensive plantations, and in general did all he could to injure the estate, from some cause of irritation against his son and heir, who however died before him. The dilapidated appearance of the building upon the accession of George Gordon Byron, the 6th lord, is described in his lines beginning:

Through thy battlements, Newstead, the hollow winds whistle;
Thou, the hall of my fathers, art gone to decay.

In 1817 Byron parted with Newstead to Col. Thomas Wildman, an old schoolfellow, for £180,000. The latter subsequently spent over £200,000 on the reparation of the property, which upon his demise in 1859 was put up at auction, the reserved price being £180,000. As the highest bid was but £121,000, the estate was bought in by Col. Wildman's representatives, in whose possession it now remains. The most conspicuous feature of the abbey at the present day is the majestic front of the old church, adorned with lofty pinnacles and rich carvings. The refectory and cloisters are in excellent preservation, and "an exquisite small chapel" in the Gothic style is still used for religious purposes. In front of the building is a small lake fed by sedgy streams; the neighboring hills have lost much of their woodlands, and many are now clad with heather only. The place underwent great improvements after it passed into the hands of Col. Wildman, who preserved whatever relics of the poet he found there; and it is now probably in a better condition than at any time since it lost its monastic character.

NEWT, a name given in Great Britain to the tritons or aquatic salamanders, distinguished from the efts by the more granulated surface of the body. (See TRITON.)

NEWTON, the name of counties in 5 of the United States. I. A central co. of Ga., bounded S. W. by South river, and intersected by Yellow and Ulcofauhachee rivers, all three uniting at its S. extremity to form the Ocmulgee; area, about 400 sq. m.; pop. in 1859, 14,241, of whom 6,234 were slaves. It has an undulating surface and a soil very fertile near the streams. The productions in 1850 were 463,130 bushels of Indian corn, 104,202 of sweet potatoes, 60,315 of oats, and 6,938 bales of cotton. There were 8 saw mills, 7 grist mills, 1 woollen and 1 cotton factory, 30 churches, and 478 pupils attending public schools. The Georgia railroad passes through the capital, Covington. II. A central co. of Miss., drained by the head branches of the Chickasawha river; area, about 550 sq. m.; pop. in 1850, 4,465 of whom 1,032 were slaves. The productions in 1850 were 165,186 bushels of Indian corn, 58,047 of sweet potatoes, 12,861 of oats, 1,474 bales of cotton, and 32,330 lbs. of rice. Capital, Decatur. III. A S. E. co. of Texas, separated from Louisiana by the Sabine river and drained by its branches; area, about 1,000 sq. m.; pop. in 1858, 2,578, of whom 755 were slaves. The surface is undulating toward the S. and somewhat hilly in the N. The soil of the bottom lands is highly productive, but much of the upland is poor and sandy. The productions in 1850 were 34,135 bushels of Indian corn, 19,890 of sweet potatoes, 152 bales of cotton, 14 hhds. of sugar, 23,570 lbs. of rice, and 10,218 of butter. Capital, Newton. IV. A N. W. co. of Ark., drained by the Buffalo fork of White river and its head branches; area, 900 sq. m.; pop. in 1854, 2,550, of whom 31 were slaves. It has a diversified surface, much of it still covered with forests, and a generally fertile soil. The productions in 1854 were 114,489 bushels of Indian corn, 7,510 of oats, and 3,965 of wheat. In 1850 there were 3 churches, and 130 pupils attending public schools. Capital, Jasper. V. A S. W. co. of Mo., bordering on Kansas and the Indian territory, drained by branches of the Neosho river; area estimated at 750 sq. m.; pop. in 1856, 6,720, of whom 288 were slaves. The productions in 1850 were 192,210 bushels of Indian corn, 18,416 of wheat, 31,318 of oats, 7,062 lbs. of wool, and 43,011 of butter. There were 2 churches, and 278 pupils attending public schools. Capital, Neosho.

NEWTON, a township of Middlesex co., Mass., on a curve of the Charles river, which bounds it N., W., and S., and on the Boston and Worcester railroad, 8 m. from Boston; pop. in 1855, 6,768. The river has here two falls, supplying extensive water power, and at each fall there is a manufacturing village, the one called Newton Upper Falls and the other Newton Lower Falls. The other villages are Newton Corner, Newtonville, West Newton, Auburndale, and Newton Centre. The last is the seat of the Newton theological institution, founded by the Baptists in 1826; and the town contains several other educational institutions of considerable reputation. In 1855 there were 5 paper mills, 1 cotton mill producing to the value of $100,000 yearly, and various other manufactories. In 1858 there were 12 churches, viz.: 3 Baptist, 6 Congregational, 2 Episcopal, and 1 Methodist.

NEWTON, GILBERT STUART, an English painter, born in Halifax, Nova Scotia, Nov. 2, 1795, died in Chelsea, England, Aug. 8, 1835. Upon the death of his father he removed in 1803 with his mother to Boston, of which city she was a native, and was instructed in painting by his maternal uncle, Gilbert Stuart. About 1816 he accompanied an elder brother who was engaged in commerce to Italy; and after studying a while at Florence and elsewhere, he repaired in 1817 to London and became a student in the royal academy. Here he formed an intimacy with Charles R. Leslie, then rising into eminence, and subsequently with Washington Irving, who, speaking of the career of the two artists, says: "Their advancement in skill and reputation, ever counselling, cheering, and honoring each other, had something in it peculiarly generous and praiseworthy." He early adopted a style founded on that of Watteau, but possessing more distinctive character and expression, and first attracted notice by his "Forsaken" and "Lover's Quarrel," from Molière's *Dépit amoureux*, which were engraved for the "Literary Souvenir" of 1826. Other works, distinguished alike by their humor and exquisite colouring, are "Shylock and Jessica," "Yorick and the Grisette," "The Abbot Boniface," "A Poet reading his Verses to an impatient Gallant," and "Macheath." In a different vein from these, but not less excellent, were his "Lear attended by Cordelia and the Physician," "The Vicar of Wakefield restoring Olivia to her Mother" (of which Leslie said: "I know nothing in the art more exquisitely conceived than the figure of Olivia"), and "Abelard in his Study," his last picture exhibited in the academy, of which he was elected a member in

1833. Most of these pictures have been well engraved. In 1832 he revisited the United States, and while there was married to a lady of Boston. Shortly after his return in 1833 he exhibited symptoms of mental aberration, which settled into confirmed insanity, and the last two years of his life were passed in a lunatic asylum at Chelsea. Many pleasant notices of him occur in the "Autobiographical Recollections" of Leslie, who says, in reference to the unfavorable impression which his friend sometimes made: "Newton, like Constable, was misunderstood by those who did not know him thoroughly. I knew enough of him and of his actions to know that his heart was noble and his mind a pure one." As an artist he was distinguished, according to Irving, by "a coloring almost unrivalled, and a liveliness of fancy, a quickness of conception, and a facility and grace of execution, that spread a magic charm over his productions."

NEWTON, Sir Isaac, an English philosopher, born in Woolsthorpe, Lincolnshire, Dec. 25, 1642, died in Kensington, a suburb of London, March 20, 1727. He was a posthumous and only child, and born, like Kepler, prematurely. He was descended, according to his own account, from Sir John Newton of Westby in Lincolnshire, and according to another from a Scotch family in East Lothian. When he was 3 years of age, his mother, having married again, gave him to the charge of his maternal grandmother. He went to school at Skillington and Stoke till his 12th year, when he was sent to the free school at Grantham, 6 miles from his native hamlet, taught by a Mr. Stokes. He ranked low in his classes till a quarrel with the boy who stood next above him roused his pride, when he applied himself with such resolution to his books that he at length stood at the head of the whole school. He was usually less interested in the sports of his schoolmates than in constructing little mechanical contrivances, in which he showed marked facility of imitation and invention. He was early fond of drawing, and covered the walls of the room where he lodged with excellent charcoal sketches of birds, beasts, men, ships, and mathematical figures. His apartment was also furnished with pictures drawn and framed by himself; and he was an adept at verse-making. Already during his residence at Grantham he was interested in the motions of the heavenly bodies. From several years' observations, he arranged a set of pins or gnomons upon the adjacent houses so as to mark the time of day by their shadows. The arrangement served as a sort of town clock, and was known as "Isaac's dial." On the outside wall of his house at Woolsthorpe there is still shown a sun dial which he must have carved there. There were formerly two, but the stone on which the other was cut was removed in 1844 and presented to the royal society. In 1656 his mother, now again a widow, took him from school to help in the management of the farm at Woolsthorpe, intending him for a rustic life; but such was his passion for study, that he found little leisure to look after the economical concerns of the manor. His mother had the wisdom not to thwart his bent, and sent him back to Grantham, where, by the advice of his uncle, the Rev. W. Ayscough, he was fitted to enter Trinity college, Cambridge, in 1661. It does not appear that he showed a marked preëminence in the studies of the university; but this is owing, no doubt, to his indifference to public honors, and his love of studious seclusion, which are conspicuous throughout his life. He extended his studies beyond the prescribed routine in several directions. In the winter of the year in which he was elected scholar (1664), or earlier, he invented his binomial theorem, to which he had been led by investigations into the problem of the quadrature of the circle, and directed his attention to the subject of circles or halos around the moon, of which he subsequently gave the theory in his treatise on optics. In 1665 he took the degree of B.A., and probably in the same year invented fluxions.—At this period the thoughts of philosophers were strongly directed to the telescope. Huyghens had constructed instruments which revealed the rings and satellites of Saturn. Descartes had explained the theory of refraction, and had pointed out how glasses could be ground of such a shape as to unite parallel rays of light in a focus. Still these glasses had the great defect of giving a confused image, which was thought to be owing to imperfect manufacture, and Newton applied himself to grinding them with more accuracy. But he seems to have suspected that the defect lay deeper than the inaccuracy of the lens, and thereupon began to experiment with a ray of light. He soon came to the important conclusion "that light was not homogeneous, but composed of rays, some of which were more refrangible than others." This showed him that the defect in the lens of the refracting telescope was inherent and not accidental. He accordingly abandoned his attempts to improve that instrument, and devoted himself to the construction of a reflecting telescope, which James Gregory of Aberdeen, in view of the defects of the refracting medium, had already invented. While engaged on this the plague forced Newton to retire to Woolsthorpe (1666), and it was more than two years before he proceeded further in his researches. It was during his retreat at Woolsthorpe—whether in this or the previous year is uncertain—that he first conceived the identity of gravity with the force which holds the planets to their orbits, and made his first test calculations; but, starting with a false basis of facts, he failed to verify the happy conjecture (see Gravitation); and it was not till 1679 that we find him again at work upon the problem. On the cessation of the plague he returned to Cambridge, was made junior fellow in Oct. 1667, and senior fellow in March, 1668, and was graduated M.A. in July of the same year. In the autumn of 1668 he completed a reflecting telescope 6 inches in length, magnifying 40 times, which enabled him to see Jupiter's satellites and the phases of Venus. This was the first reflecting telescope ever directed to the heavens, for Gregory had never completed the instrument which he had invented. Compared with the much earlier refractors of Hevelius and Huyghens, however, this was a small and ill-made instrument. In consequence of interruptions, Newton did not resume his labors in the construction of reflectors till the autumn of 1671, when he made another, which was sent up in December "for his majesty's perusal." It is carefully preserved in the library of the royal society of London. Constructing telescopes, however, was rather incidental to Newton's labors than the object of them, and he never resumed it again. His mind appears to have been much occupied at this time and for many years afterward with "chemical studies and practices." His celebrated letter (1669) of advice to Mr. Aston, who was about to set out for a tour of the continent, reveals a strong belief in the doctrines of alchemy; and he certainly pursued his experiments to a late period of his life in the hope of effecting some valuable transmutations. "About 6 weeks at spring and 6 at y^{e} fall," says Humphrey Newton, who was his amanuensis during 1684–'9, "fire in his laboratory scarcely went out. . . . . . He made very little use of his chymicals, y^{e} crucibles excepted, in which he fused his metals."—In 1669 he succeeded Dr. Barrow in the Lucasian chair of mathematics at Cambridge, and during that and the next year spent considerable time in writing notes for a Latin translation of Kinckhuysen's algebra. At the same time the fluxionary calculus occupied his thoughts. In 1669–'72 he delivered a course of lectures on optics in the university, and from time to time communicated to the royal society the results of his researches on light and colors. The reception of the new doctrine of the compound nature of light was very stormy, and involved Newton in a long and acrimonious controversy both at home and abroad. Of his disputants, Dr. Hooke was the most intractable, the bitterest, and perhaps, excepting Huyghens, the ablest. The course of the controversy is instructive. Newton considered light to consist of material particles. Hooke believed it to result from a series of undulations of an elastic medium pervading all bodies. With this theory, which Huyghens maintained in common with Hooke, Newton's alleged discovery seemed incompatible, and was accordingly strenuously resisted. On the other side we see Newton himself rejecting Huyghens's beautiful law of double refraction in Iceland spar, "founded on the finest experimental analysis of the phenomena," because it was presented as a corollary of the undulatory theory. Hooke in the one case, and Newton in the other, failed alike to see, or refused to admit, that the principle in question was true or false independently of what light is, or how it is propagated. It is remarkable that Newton should have missed, in the course of his optical experiments and the controversy which followed, the discovery of the different dispersive powers of different bodies. The opinion that all bodies produce spectra of equal length under the same angle of refraction, though "unsupported by experiments," observes Brewster, "and not even sustained by any theoretical views, seems to have been impressed upon his mind with all the force of an axiom; and when, under the influence of this blind conviction, he pronounced the improvement of the refracting telescope to be desperate, he checked for a long time the progress of this branch of science, and furnished to future philosophers a lesson which cannot be too deeply studied." From 1671 to 1676 his optical researches and the disputes in which they involved him seem to have occupied most of his time. How distasteful these disputes were to him may be gathered from a letter he wrote to Leibnitz, dated Dec. 9, 1675, in which he says: "I was so persecuted with discussions arising out of my theory of light, that I blamed my own imprudence for parting with so substantial a blessing as my quiet to run after a shadow." Nearly a year later he writes: "I see I have made myself a slave to philosophy." Once free of controversy, "I will bid adieu to philosophy eternally, excepting what I do for my private satisfaction, or leave to come out after me." He appears at this time to have thought of studying law, for he found "mathematical speculations at least dry if not somewhat barren." He had already in 1670 written: "I see not what there is desirable in public esteem, were I able to acquire and maintain it. It would perhaps increase my acquaintance, the thing which I chiefly study to decline." In Jan. 1672, he was elected fellow of the royal society; but offered his resignation in March, 1673, on the ground of being unable to attend the meetings, in consequence of the distance of his residence. He had a prospect at this time of pecuniary trouble from the loss, in due course of things, of his fellowship in the university, by his being appointed to the Lucasian chair; and it is likely that this prospect had something to do with his disposition to resign, for we find the society nearly two years later excusing him with others from the payment of the usual due of one shilling a week. Baily says, however: "It seems to have been no uncommon event for the society, in the early years of its existence, to remit the arrears of members, either on application from the members themselves, or on account of some other circumstances with which we are now unacquainted." The crown, however, came to his relief in 1675, by issuing a patent allowing the Lucasian professor to hold a fellowship without being obliged to go into orders. An interesting document in Newton's handwriting, entitled "A Scheme for establishing the Royal Society," has been brought to light by Sir

David Brewster. He probably drew it up at this time. His desire, it seems, was to convert the royal society into an institution like the academy of sciences in Paris. In Dec. 1675, he sent to the society his "Hypothesis explaining the Properties of Light," reprinted in the "Philosophical Magazine," Sept. 1846; and his "Explanation of the Colors of Thin Plates and of Natural Bodies," which Brewster says "is perhaps the loftiest of all his speculations." The phenomena of colors he ascribes to a supposed property of light which he calls "fits of easy reflection and transmission." The theory is that every particle of light, from its first discharge from a luminous body, possesses, at equally distant intervals, dispositions to be reflected from and transmitted through the surfaces of bodies upon which it is incident. This appears to have been his last communication to the society on optical subjects. His disputes with Hooke led him to resolve not to publish his optical discoveries during the lifetime of his rival; accordingly it was not till 1704, the year after Hooke's death, that his great work on "Optics" appeared. In this work he omits to give Hooke credit for certain observations, which in an hour of friendly intercourse, in his beautiful letter to him of Feb. 5, 1675–'6, he had thus handsomely acknowledged: "If I have seen further than others, it is by standing on the shoulders of giants" (Descartes, Hooke, and others). In the preface he says: "Part of the ensuing discourse about light was written at the desire of some gentlemen of the royal society in 1675, . . . and the rest was added about 12 years after to complete the theory, except the 3d book and the last proposition of the 2d, which were since put together out of scattered papers." From 1673 to 1683 he delivered at the university, as Lucasian professor, lectures on arithmetic and algebra. These Mr. Whiston published in Latin in 1707, against Newton's wishes, it is said, on account of their being an unfinished work. A second edition was published in 1712 with improvements by the author, and they were translated into English soon after by Mr. Raphson. Maclaurin's algebra appears to have been drawn up as an annotation of this. Presentation copies of his optical and algebraical lectures, the latter in his own handwriting, are in the library of Cambridge university. In 1676 we find him publicly interesting himself in the raising of fruit trees. He edited the 3d Cambridge edition of Varenius's geography (1681).—In 1679 Newton's attention was recalled to the subject of universal gravitation by a letter from Hooke. This philosopher "had illustrated as early as 1666," observes Mr. Grant in his "History of Physical Astronomy," "by means of a beautiful experiment, the motion of a body revolving in an ellipse under the influence of a force directed continually to the centre. And in his letter to Newton on the occasion above referred to, he declared that if gravity decreased according to the reciprocal of the square of the distance, the path of a projectile would be an ellipse having the centre of the earth in the focus." Newton had hitherto confined his researches to bodies revolving in circular orbits. He now addressed himself to the vastly more difficult problem of orbits of variable curvature, and demonstrated the mathematical necessity of the 3 laws of Kepler as applied to the motion of a body projected in free space, and acted upon continually by a force directed toward the focus. We shall see presently how Halley's failure to solve this very problem led to the composition of the *Principia*. Notwithstanding the satisfactory nature of these researches, Newton could not consider the law of gravitation established so long as the serious discrepancy found in his calculations upon the moon remained unaccounted for. The explanation was soon to be furnished. In 1682, hearing of a new measurement of a degree of the meridian by Picard, the French astronomer, which differed materially from the commonly received estimate, he was led to go over the calculation again on the basis of the new measure. The result, this time, was in exact agreement with observation. The foundation being thus firmly laid, he proceeded to build up a complete demonstration of the laws of the celestial motions. He perceived that the earth, by its axial rotation and the mutual attraction of the particles of matter composing its mass, must be flattened at the poles, and he determined the amount of this flattening. He showed that the spheroidal figure of the earth, combined with its diurnal motion, would cause the weights of bodies at the surface to vary in different latitudes; and this result of pure theory explained a singular fact first noticed by Richer, the French astronomer, who had found in 1672 that a clock regulated to mean time of Paris lost 2m. 28s. daily at Cayenne, within 5° of the equator. This led him to an explanation of the precession of the equinoxes. Kepler and others before him had spoken of an attraction of the waters of the earth by the moon. Newton explained the tides. He saw that the masses of the planetary bodies could be determined by observing the effects of their mutual attraction, and that from this cause their several motions would be disturbed. Thus he was conducted to an elucidation of the intricate subject of the moon's motions, which had long been a stumbling-block to astronomers. He deduced theoretically the two lunar inequalities known as the variation and the annual equation, and also the progression of the apogee and the regression of the nodes, though it was reserved for the mathematicians of the next century to complete the lunar theory. It is not known that he made any public announcement of his discoveries before Feb. 1685, when he sent to the royal society a paper containing his early researches on centripetal forces; nor indeed does it appear that up to this time he had developed his thoughts beyond the substance of this brief essay. Halley had endeavored in 1684 to calculate the law of the solar force directed to the planets moving in elliptical orbits, this force being subject to continual variation. Failing, he had applied to his friends in London for assistance. Sir Christopher Wren plainly told him he had given much thought to the problem, but could make no impression upon it. Hooke asserted that he had solved it, but refused to furnish his demonstration. Halley then consulted Newton, and, finding to his delight that he had gone over the whole ground, induced him to communicate to the royal society the paper already alluded to. In April, 1685, he had entered seriously upon the composition of the *Principia*. Mr. Rigaud, in his "Historical Essay on the first Publication of the *Principia*" (Oxford, 1838, p. 25), has remarked in reference to this fact, that the *Principia* was not a protracted compilation from memoranda which might have been written down under the impression of different trains of thought. It had the advantage of being composed by one continued effort, during which the mutual bearing of all the several parts was vividly presented to the author's mind. Pemberton, in his preface to his "View of Sir Isaac Newton's Philosophy," states that the *Principia* was composed in the space of a year and a half. While engaged in writing the 2d and 3d books (April, 1687), he was called from his seclusion to act as one of the delegates appointed to defend the university against the attacks of King James II. upon its privileges. His Lucasian lectures at this time were not attractive to the students. According to the testimony of his amanuensis, Humphrey Newton: "So few went to hear, and fewer that understood him, that ofttimes he did in a manner, for want of hearers, read to the walls." On the presentation of Newton's paper to the royal society, Hooke raised a violent reclamation relative to the asserted discovery of the law of gravitation. He had as early as 1666 arrived at very accurate notions of centripetal forces. He had published in 1674 a work entitled "An Attempt to prove the Motion of Earth from Observations," in which, as Mr. Grant observes, he describes the general nature of gravity with remarkable clearness and accuracy. (There is a Latin translation of this work, printed in 1679.) But he had not attempted to compute the law of the variation of the force at different distances from the centre, which, as applied to the elliptical orbits of the planets, was the very problem which had baffled Halley and Wren, and which Newton had solved. The pretensions of Hooke called forth from Newton a long and interesting letter, dated June 20, 1686, in which he recounts the progress of his researches, and intimates his resolution to suppress the 3d book of his work rather than have his peace of mind disturbed by a controversy with envious rivals. By Halley's persuasion, however, Newton consented to let the whole appear, and as a compromise prefaced the scholium to the 4th proposition of the 1st book with the remark that Wren, Hooke, and Halley had all found, by means of the relation between the periodic times and the distances, that the force which retains the celestial bodies in their orbits varies according to the inverse square of the distance. In April, 1686, the 1st book of the *Principia* was exhibited at the royal society, and in June Halley undertook the publication of it at his own expense, although it involved him in considerable pecuniary risk. About midsummer of the next year the work appeared from the press. The number of copies printed is not known. The original price seems to have been 10*s*. It is divided into 3 books. The 1st treats of motion in free space; the 2d treats chiefly of resisted motion; and the 3d deduces from these the system of the world. There is a copy of the original edition (4to.) in the Astor library, New York. It bears the following title page: *Philosophiæ Naturalis Principia Mathematica. Imprimatur Julii 5,* 1686. *Londini*, 1687. The doctrines of the *Principia*, like all discoveries which tend to overthrow cherished opinions, were hotly combated for many years. The philosophy of Descartes, which the Newtonian theories at length supplanted, was predominant throughout Europe; and such was the disfavor which the Newtonian philosophy met with everywhere on the continent, that, according to the remark of Voltaire, Newton had not at the time of his death above 20 followers out of England, though the *Principia* had then been 40 years before the world. "The language of the French mathematicians," observes the author of the "History of the Inductive Sciences," "is Cartesian for almost half a century after the publication of the *Principia* of Newton." "The profound and intricate reasoning which Newton was compelled to adopt," says Mr. Grant, "formed a serious impediment to the early dissemination of his doctrines." The British universities, however, early introduced the Newtonian philosophy as a subject of study. The university of St. Andrew's in Scotland took the lead in 1690, followed by Cambridge in 1699, and by Oxford in 1704. Dr. Bentley made the new principles the basis of a theological argument in the Boyle lectures preached in London in 1692-'3.—After the publication of the *Principia*, Newton was content to extend and develop the principles of his philosophy without advancing into any new fields of science; and even these developments appear to have been based for the most part on experiments and observations previously made. He was elected to represent the university in parliament in 1689, and again in 1701; and though he was rejected in 1705, those who opposed him acknowledged him to be "the glory of the university," but considered that he was sent to "tempt them from their duty by the great and just veneration they had for him." In the spring of 1689, during his residence in London, in attendance at parliament, he became acquainted with John Locke, who in the year of the publication of the *Principia* had completed his "Essay on the Human Understanding." A firm friendship grew up between these great men, unbroken till the death of Locke in 1704. During the sitting of parliament Newton was called from London to attend the death-bed of his mother (1689). In the summer of the same year he made the acquaintance of Huyghens, who was on a visit to London. In 1690 Locke and others of his friends tried in vain to procure for him a lucrative employment under government. Their failure touched him keenly. On the dissolution of parliament he resumed his philosophical and mathematical studies at Cambridge. After this his health became much impaired. In Dec. 1692, and Jan. and Feb. 1693, he wrote the four celebrated letters to Dr. Bentley on the existence of a Deity. Biot, in his memoir of Newton, published in the *Biographie universelle* in 1822, brings to light a MS. of Huyghens, which is employed to prove that Newton was suffering under derangement of mind at this time. Though the low state of his health gives color to Biot's startling statement, the argument does not appear to be sufficient. He was greatly affected about the beginning of 1692 by the loss of valuable MSS., which were consumed in his study by the upsetting of a candle while he was away at chapel. "Every one," remarks Mr. Abraham Pryme, who was a student in the university at the time, "thought he would have run mad; he was so troubled thereat, that he was not himself for a month after." The notable story of his little dog Diamond having occasioned the mischief, and of Newton's remarkable equanimity on seeing what had happened, Brewster considers a fiction. During this and the following year his health continued poor, and he certainly fell into a state of melancholy, though there is no direct evidence that his reason was unseated. A rumor went abroad however to that effect, and we find Leibnitz congratulating Huyghens, in a letter of June 22, 1694, on Newton's recovery. In a letter to Pepys, dated Sept. 13, 1693, and one to Locke about the same time, there are evidences of loss of judgment. Pepys at any rate says of his letter, it was "so surprising to me for the inconsistency of every part of it as to put me into great disorder by it, lest it should arise from that which of all mankind I should least dread from him and most lament for—I mean a discomposure in head or mind, or both." A fortnight after this letter was written, Newton told a common friend "that he had writ a very odd letter to Pepys at which he was much concerned;" adding "that it was in a distemper that much seized his head, and that kept him awake for above 5 nights together." Not many days after his painful letter to Locke was written he wrote again with child-like simplicity and tenderness, asking to be forgiven for thinking ill of him, and subscribing himself: "Your most humble and unfortunate servant." The tone of Locke's noble reply to this (Oct. 5, 1693) plainly shows that he did not attribute his friend's mistakes to mental alienation.—About this time began the celebrated quarrel between Newton and Flamsteed, the astronomer royal, which was only terminated by Flamsteed's death (1719). They had been on terms of cordial intimacy till 1696, when a coolness began to spring up. Newton was engaged on his lunar theory, and required observations of the moon's places. Flamsteed, who at his own expense had put himself in possession of the proper instruments, was the only one who could furnish the observations. They were supplied, though not as promptly as Newton wished. Complaint followed, with little outbreaks of temper on both sides. Newton was at the summit of his fame, and Flamsteed saw the vast importance of his own labors, then unappreciated, but since fully allowed. Halley, devoted to Newton, doubtless jealous of Flamsteed, and wishing to supplant him, embittered the difference, if indeed it was not primarily his instigation that kept the quarrel alive. There seems to have been on both sides a cordial animosity, which neither Newton's habitual forbearance, equanimity, and love of peace, nor Flamsteed's sincere piety, could prevent from bursting out afresh on every occasion. The quarrel culminated in the publication, under Halley's name, of Flamsteed's celestial observations, which Halley had mutilated. This act, for which no sufficient excuse has been adduced, roused Flamsteed's indignation; and at a subsequent meeting of the parties, when Flamsteed declared that he had been robbed of his labors, Newton was provoked into the use of unseemly epithets toward him, "of which 'puppy' was the least." Three fourths of the edition afterward falling into Flamsteed's possession, he burned it, "as a sacrifice to heavenly truth." When we consider the extraordinary homage which was everywhere rendered to Newton, it is not surprising that he should have resented Flamsteed's refusal to pay him deference; nor, when we consider Flamsteed's hot temper, and the wrongs or supposed wrongs under which he smarted, can we blame him for want of respect toward his illustrious contemporary.—Through the patronage of Charles Montague, chancellor of the exchequer, and afterward earl of Halifax, Newton received in 1695 the appointment of warden of the mint, worth between £500 and £600 a year; and in 1699 he was promoted to the mastership of the mint, worth £1,200 to £1,500, which office he held during the rest of his life. In this situation his chemical knowledge was of great use; and in effecting the recoinage which was completed toward the close of 1699, his services were so highly appreciated that the chancellor of the exchequer declared that he could not have carried it on without his assistance. On his promotion he appointed Mr. Whiston to be his deputy at Cambridge, with the full profits of the place; and in 1701 he resigned the chair. In 1699 he was elected foreign associate of the academy of sciences at Paris. He was chosen president of the royal society in 1703, and annually reëlected during his life. In 1705 he was knighted by Queen Anne. In 1713 he communicated a paper to the royal society on the different kinds of years in use among the nations of antiquity; it was published in the "Gentleman's Magazine" for Jan. 1755, and the original is in the British museum. In 1717 he prepared two reports on the state of the coinage, which were laid before the houses of parliament. They were followed by a proclamation in Dec. 1717, reducing the value of guineas from 21*s.* 6*d.* to 21*s.*—In 1705 began the famous dispute with Leibnitz. Newton and Leibnitz, it is now clear, were both original inventors of the infinitesimal analysis, Newton being the earlier. Leibnitz, however, published his method in 1684, while Newton's did not appear till 20 years later. The geometry of the former spread rapidly over Europe; he was considered as the sole inventor, and Newton, in the first edition of the *Principia*, acknowledged his claims as an independent inventor. In 1699 a remark was dropped in the royal society casting suspicion upon the originality of Leibnitz's discovery. Leibnitz replied in the Leipsic *Journal* without asperity, asserting his claim. On Jan. 1, 1705, the same publication criticized with marked severity Newton's "Quadrature of Curves," then lately published, in which the method of fluxions was for the first time announced to the world, asserting in effect that the fluxionary method was not an original discovery. Newton and his friends were justly indignant, and Keill, an astronomer, undertook his defence, but was betrayed into doing similar injustice to Leibnitz, charging him in effect with having borrowed his calculus from hints thrown out by Newton. Leibnitz appealed to the royal society, which appointed a commission in the premises. Their report, which vindicates Newton's claims, forms what is called the *Commercium Epistolicum* (1712); for the contents of which, as also of a 2d edition with a review entitled *Recensio* (1722), Newton was himself fully responsible. In a new edition, edited by MM. Biot and Lefort (Paris, 4to., 1856), this report is shown to be in many points unfair. In 1713 John Bernouilli entered the quarrel with the declaration: "There is no reason to believe that the fluxionary calculus was invented before the differential." An issue so manifestly false shows not only the spirit of the continental party, but also, since Leibnitz allowed at least the statement to pass uncorrected, what must have been their provocation. The dissension continued without abatement up to Leibnitz's death (1716). Nor did Newton stop there. He published soon after what Biot characterizes as a "bitter refutation." In the 1st edition of the *Principia* (book ii., scholium to lemma 2) justice was done to Leibnitz's claim. In the 3d edition (1726) another scholium is substituted, in which Leibnitz's name is not mentioned.—During his residence at Cambridge Newton was in the habit, as he expresses it, "of refreshing himself with history and chronology when he was weary with other studies." Hence grew up a system of chronology, which, however, was very imperfect and only existed in separate papers till the princess of Wales (afterward queen consort of George II.), who enjoyed the privilege of his conversation during the latter part of his life, requested a copy of it for her private use. The MS. after some years was printed in Paris (1725) surreptitiously, and involved Newton in an annoying controversy, in consequence of which he was induced to prepare a larger work which was interrupted by his death. It appeared toward the end of 1727, under the title, "The Chronology of Ancient Kingdoms amended, to which is prefixed a Short Chronicle from the first Memory of Things in Europe to the Conquest of Persia by Alexander the Great." His system was based on the astronomical observations of the ancients.—Previous to 1692 Newton was known by the appellation of an "excellent divine." It is therefore probable that his posthumous papers on religious subjects were composed in the prime of life, at Cambridge. His "Observations on the Prophecies of Daniel and the Apocalypse of St. John" appeared in London in 1733 (4to.). His "Historical Account of two Notable Corruptions of Scripture," mainly composed prior to 1690, but finished in that year, was first published in London in 1754, under the erroneous title of "Two Letters from Sir Isaac Newton to M. Le Clerc." In some catalogues of Newton's works another edition is mentioned, entitled "Two Letters to Mr. Clarke, late Divinity Professor of the Remonstrants in Holland" (1754). It appears to have been first published entire in Horsley's edition of Newton's works, under the title, "Historical Account of two Notable Corruptions of Scripture, in a Letter to a Friend." That friend was probably Locke. In this work he considers the two noted texts 1 John v. 7, and 1 Tim. iii. 16. The former he attempts to prove spurious, and the latter he considers a false reading. There is no doubt that Newton was hostile to the doctrine of the Trinity. Indeed, the publication of several of his private papers in Sir D. Brewster's memoir places the fact of his entertaining Arian opinions beyond question. About the beginning of 1691 Locke contemplated going to Holland, and Newton sent him the above tract in strict confidence, requesting him to take it with him and procure its translation and publication in French, anonymously, as is evident; the object being apparently to ascertain the judgment of biblical critics before bringing it out under his own name in English. Locke abandoned his intention of visiting Holland, but sent the MS. to his friend Le Clerc in that country, who kept it in his possession till January of the next year, when he informed Locke that he was about to publish it in Latin. Newton, hearing of this became alarmed at the risk of detec-

and stopped the publication. At his death he left many MSS. on religious subjects, which have never been published. Beside a Latin dissertation on the sacred cubit of the Jews, printed in 1737 among the miscellaneous works of Mr. John Greaves, Newton's only other published religious writings are the four celebrated letters addressed to Dr. Bentley, first printed in 1756. They are directed against atheism, and aim to show that matter could never have arrayed itself in its present forms without a divine power being impressed upon it. Except a short tract on the nature of acids, his only chemical paper is one printed in the "Philosophical Transactions" for March aud April, 1701 (pp. 824–829), under the title of *Scala Graduum Caloris*. It contains a comparative scale of temperatures, from that of melting ice to that of a small kitchen coal fire. To the 2d English edition of the "Optics" are appended a number of queries, the 18th and 24th of which contain his opinions in favor of the existence of an elastic ether diffused through all space, "much subtiler than air." In Mr. Turnor's "Collections for the History of Grantham" is given "a remarkable and curious conversation between Sir Isaac and Mr. Conduitt," his nephew-in-law, in which he speculates about planetary bodies having issued from the sun, and returning again at length to replenish its fires.—During the last 20 years of his life, which he spent in London, the charge of his domestic concerns devolved upon his niece, Mrs. Catharine Conduitt. For 2 or 3 years prior to 1725 he had been a good deal troubled with a disorder of the bladder, accompanied with cough and gout. In January of that year he was seized with violent cough and inflammation of the lungs, in consequence of which he removed his residence to Kensington, where his health improved. From this time the duties of his office at the mint were discharged by Mr. Conduitt. On Feb. 28, 1727, he went to London to preside at a meeting of the royal society, and became greatly fatigued. His old complaint returned with increased violence, and soon proved fatal. He was buried with great pomp in Westminster abbey, and his relatives devoted £500 for the purpose of a monument, which was erected in 1731. Though he had accumulated a personal estate worth at his death £32,000, he does not appear to have lived narrowly. Brewster states that he lived in London "in very handsome style, and kept his carriage with an establishment of 3 male and 3 female servants. . . . His generosity and charity had no bounds, and he used to remark that they who gave away nothing till they died, never gave at all." To his relatives in particular he was lavish. He was of medium stature, and in the latter part of his life inclined to corpulency. In old age he had a fine head of hair, as white as silver, without any baldness. He never wore spectacles, and it is stated never lost more than one tooth to the day of his death. Bishop Atterbury, speaking of the last 20 years of his life, says: "He had something languid in his look and manner, which did not raise any great expectation in those who did not know him." "He spoke very little in company," observes Mr. Thomas Hearne, "so that his conversation was not agreeable." Though impatient of opposition and stupidity, he appears to have had no overweening opinion of himself. Alluding to his discoveries in a letter to Dr. Bentley, he says: "If I have done the public any service this way, it is due to nothing but industry and patient thought." When asked how he arrived at his discoveries, he replied: "I keep the subject constantly before me, and wait till the first dawnings open slowly by little and little into a full and clear light." Thus was produced the *Principia*, to which Laplace assigns "a preëminence above all the other productions of the human intellect." The house in which Newton was born was purchased in 1858 by Miss Charlwood of Grantham, to be pulled down, that a scientific college might be erected on its site. His statue was inaugurated at Grantham, Sept. 21, 1858. His dwelling house, with an observatory which he built on the top, still remains in St. Martin's street, London, and is a place of scientific pilgrimage.—Beside the 1st edition of the *Principia* above noticed, a 2d was published at Cambridge in 1718, under the superintendence of Cotes, whose correspondence with Newton at the time has been published (London, 1850), under the editorship of Mr. Edleston. A 3d edition appeared in London in 1726 (4to.), edited by Pemberton; a 4th in 1729 (2 vols. 8vo., London), Englished by Motte; and a 5th in 1730 (2 vols. 8vo., London). Several editions have been published on the continent, the most famous of which is the Jesuits' edition (4 vols. 4to., Geneva, 1739–'42), republished in Glasgow under the editorship of Wright (4 vols. 8vo., 1822). A Latin translation of the "Optics," by Dr. Clarke, appeared in 1706 (4to., London), for which Newton presented the translator with £500. Many other editions have been published. Of the "Universal Arithmetic" there are several editions, both English and continental. The "Optical Lectures" appeared in London in 1728; "Fluxions," in English, with a commentary, in 1736. His principal works were collected and published by Bishop Horsley (5 vols. 4to., London, 1779–'85). His communications to the royal society are comprised in vols. vii. to xi. of the "Transactions."—See Sir David Brewster's "Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton" (2 vols. 8vo., 1855), and the other works cited.

NEWTON, John, an English clergyman, born in London in July, 1725, died there, Dec. 21, 1807. After attending school at Stratford in Essex from his 8th to his 10th year, he accompanied his father, who was master of a ship, on a voyage to the Mediterranean, and subsequently made several trips. In his 19th year he was seized by a press gang and taken on board the Harwich man-of-war, where however, through the influence of his father, he was made a midshipman. While the ship lay at Plymouth he deserted, but was soon caught, flogged, and degraded, and afterward treated with such severity that he willingly exchanged into an African trader off Madeira. This ship he left at Sierra Leone, and hired himself out as a laborer to a slave trader in the island of Benanoes; and there he remained till 1747. In this year an English captain arrived at Sierra Leone, commissioned by his father to bring him back; but nothing but the recollection of Mary Catlett, a Kentish girl to whom he had become attached before he left England, induced him to return. On the homeward voyage the perils to which he was subjected revived the religious impressions which he had early received from his mother. In 1750 he married Miss Catlett. Shortly afterward he commanded a Liverpool slave ship, was engaged in that business 4 years, and confesses that, during all the time he was in it, "he never had the least scruples as to its lawfulness." But growing disgusted with the occupation, he succeeded in obtaining, in Aug. 1755, the situation of surveyor of the port of Liverpool. While in Africa he had studied Euclid, and during his voyages had taught himself Latin; and he now devoted his time to acquiring the Greek and Hebrew. He engaged zealously in the religious movement originated by Wesley and Whitefield, and in 1758 applied to the archbishop of York for holy orders, but was refused on the ground of irregularity. In April, 1764, however, he was ordained by the bishop of Lincoln and appointed curate of Olney in Buckinghamshire, and shortly afterward was induced to publish an autobiography, entitled "An Authentic Narrative of some Remarkable and Interesting Particulars in the Life of the Rev. John Newton." At Olney he remained nearly 16 years, forming a very close friendship with the poet Cowper, in conjunction with whom he wrote the "Olney Hymns." In 1779 he was presented with the rectory of the united parishes of St. Mary Woolnoth and St. Mary Woolchurch Haw, Lombard street, London, where he remained till his death, preaching three times a week even when more than 80 years old. To all entreaties to stop, he replied: "What! shall the old African blasphemer stop while he can speak?" In doctrinal opinions he was a Calvinist, and was a prominent leader in the so called evangelical party in the church of England. Among his works may be mentioned a volume of "Six Discourses" (1760); a series of "Letters on Religion" (1762), under the signatures of Omicron and Vigil; "Cardiphonia;" and a "Review of Ecclesiastical History" (8vo., 1770), beside numerous sermons and tracts. A collected edition of his works was published in 1816 (6 vols. 8vo., London). His life was written by the Rev. Richard Cecil (London, 1808).

NEWTON, Robert, D.D., a Scottish clergyman, born Sept. 8, 1780, died April 30, 1854. In early life he joined the Wesleyan church and became a preacher. In 1803 he was appointed to the Glasgow circuit, where he attended the lectures in the university on divinity and philosophy. He was selected by the Rev. Joseph Benson, president of the conference, to deliver a series of sermons before that body at its annual meeting, and fulfilled the appointment to the entire satisfaction of the conference. In 1812 he became known in London as a speaker at public meetings, particularly in behalf of the British and foreign Bible society. From London he was removed to Wakefield, and thence to Liverpool. He was appointed secretary of the conference and subsequently president. At the centenary conference held in Liverpool in 1839, he was appointed delegate to the general conference of the Methodist Episcopal church of the United States. His first sermon in America was delivered in New York, April 26, 1840; and during the whole time of his stay he attracted large crowds to his ministry. His first appointment in Baltimore, where the general conference was held, created such an excitement that long before the hour of service the church was crowded to excess, and the streets around were filled with people anxious to hear him. Finding no church large enough to contain his audience, permission was granted him to preach in Monument square, where he was listened to by 15,000 people. He subsequently preached in the hall of the house of representatives at Washington. One of his most effective addresses was delivered in the Tabernacle, New York, at the anniversary meeting of the American Bible society in 1840.

NEWTON, Thomas, an English prelate, born in Lichfield, Jan. 1, 1704, died in 17[illegible]. He was graduated at Trinity college, Cambridge, took orders in 1729, received the curacy of St. George's, Hanover square, London, and afterward that of Grosvenor chapel, and in 1744 was presented by the earl of Bath to the rectory of St. Mary-le-Bow. He was chosen in 1747 lecturer of St. George's, Hanover square. In 1761 he became bishop of Bristol, and in 1768 dean of St. Paul's. In 1749–'52 he published the first critical edition of Milton's "Poetical Works" with variorum notes (3 vols. 4to.). His "Dissertations on the Prophecies" (3 vols. 8vo., 1754–'8) became very popular, and were translated into German and Danish. A collected edition of his writings appeared in 1782 (3 vols. 4to., London).

NEY, Michel, duke of Elchingen and prince of the Moskva, a French marshal, born in Sarrelouis, Jan. 10, 1769, executed in Paris, Dec. 7, 1815. The son of a cooper, he was first an errand boy or under clerk in a notary's office; but enlisting in the army at the age of 18, he was soon promoted, and when the revolution of 1789 broke out was sub-lieutenant in a regiment of hussars. In 1794 he was a captain in the army of the Sambre and Meuse under Jourdan, where he attracted the attention of Kléber, who caused him to be promoted, and sent him on several expeditions which proved successful and procured him the surname of *l'infatigable*. During the campaign of 1796 he distinguished himself in the battles of Altenkirchen, Würzburg, and Forchheim. In 1797, under Hoche, who had been placed at the head of the army of the Rhine, he was made a brigadier-general for his gallantry in an engagement on the Rednitz, and by a brilliant charge contributed to the victory of Neuwied (April 18). A few days later, during a skirmish at Diernsdorf, his impetuosity led to his being taken prisoner, but he was forthwith exchanged. In 1799 he was placed in command of a brigade in the army of the Rhine under Bernadotte, and at the head of 150 men surprised Mentz, for which he was rewarded with the rank of general of division. He now served under Masséna, whom he accompanied in the valley of the Danube; and when that general concentrated his forces on the banks of the Limat to withstand the attack of the combined Austrians and Russians under Suwaroff, Ney, at the head of a separate corps, kept the archduke Charles at bay, and thus indirectly contributed to the victory of Zürich, by which France was preserved from invasion. He approved of the *coup d'état* of the 18th Brumaire. Under Moreau he participated in most of the engagements that marked the spring campaign of 1800 in Germany, and during the winter was engaged in the celebrated victory of Hohenlinden (Dec. 3), which brought Austria to terms. During the peace which followed he married, by Bonaparte's advice, Mlle. Auguié, a schoolmate and bosom friend of Hortense Beauharnais. He was appointed inspector-general of cavalry and minister plenipotentiary to Switzerland, and in 1803 was placed in command of the 6th corps at the camp of Boulogne, where the French army was preparing for the invasion of England. He was still there when, on Napoleon's accession to the empire, he received, as "a reward for his long series of heroic deeds," the title of marshal. On the renewal of hostilities in 1805, he led one of the corps of the great army which, under command of the emperor himself, crossed the Rhine to subdue Austria. He displayed his wonted energy, particularly at Elchingen, where he not only evinced great generalship, but "fought as bravely as any private," and received the title of duke of Elchingen. He forced Mack into Ulm by his skilful manœuvres, penetrated into the Tyrol, routed the archduke John, took possession of that province, and seconded the operations which resulted in the decisive victory of Austerlitz. The Prussian campaign (1806-'7) afforded new opportunities for the display of his unrivalled gallantry; he was instrumental in the victory of Jena, forced Magdeburg to capitulate, was the first to face the Russians when they entered the lists, rescued his colleague Bernadotte at Mohrungen, defeated the Prussians under Lestocq, held his ground in the dreadful but undecided contest at Eylau, and finally determined the triumph of the French army at Friedland. Here he was in command of the right wing, which bore the brunt of the battle and stormed the town. Napoleon, as he watched him passing unterrified through a shower of balls, exclaimed: "That man is a lion;" and henceforth the army styled him *le brave des braves*. Being sent to the Peninsula in 1808, he took possession of the Asturias and Galicia, attacked Portugal with some success, and, when the French army under Masséna was compelled to fall back, protected its retreat with great skill. He was nevertheless recalled to France, Napoleon's confidence in his sincerity being somewhat shaken; and for nearly two years he lived in a kind of disgrace. But his services were wanted for the Russian war in 1812, and he was reinstated in his command. He defeated the Russians at Krasnoi, shared in the capture of Smolensk, and bore himself so heroically at the battle of Borodino that to the title of duke of Elchingen Napoleon added that of prince of the Moskva. He remained exposed during the whole day to the fire of the enemy, and while he occasionally ordered his soldiers to stoop or lie down in order to avoid the discharges of artillery, he himself stood immovably erect. But it was during the disastrous retreat that he proved, as Napoleon said, that "his soul was tempered with steel." For several days he had been separated from the army and was thought to be lost, when, at the head of his dreadfully reduced corps, he reappeared, having defeated all the Russian troops that obstructed his way. When Napoleon left the army, and Murat himself fled as if in despair, Ney showed an iron will supported by iron strength; he saved all that could be saved in this terrible wreck. On his arrival at Hanau, regardless of past fatigues and sufferings, he worked day and night to organize the new army which was to make another stand against the combined forces of Europe. He figured conspicuously at Lützen, Bautzen, Dresden, and Leipsic; and when the French army evacuated Germany, he commanded the rear guard. France was now invaded (1814); he fought to the last against the advancing enemy, in the battles of Brienne, Montmirail, Craonne, and Châlons-sur-Marne. But though he fulfilled his duty as a soldier in this last crisis, he found himself quite bewildered when launched on the sea of politics. He was among the foremost to insist upon Napoleon's abdication, and is even charged with having acted in the rudest manner toward the fallen emperor. On his deposition being declared, April 11, 1815, Ney flew to Louis XVIII., who welcomed him in the most flattering terms and overwhelmed him with distinctions; he made him a peer of France, grand officer of the order of St. Louis, chief of nearly the whole French cavalry, and commander of the 6th military district, the head-quarters of which was at Besançon. On hearing of Napoleon's landing at Cannes, he repaired to his post, after promising under oath to Louis XVIII. that he would bring him the fugitive from Elba a "prisoner in an iron cage." He no doubt intended to keep his word; but when he heard of the enthusiastic reception of Napoleon at Lyons, when he saw his old companions flocking around the emperor, when his own troops called anxiously upon him to lead them to their chief, he could not resist the contagion, seconded perhaps by the impulse of his own feelings; he proclaimed Napoleon the only legitimate sovereign of France, and hastened to join him at Auxerre. He returned with him to Paris, which they entered March 20, 1815. In less than 3 months afterward they were marching to Belgium, Ney leading the right wing of the French army. He fought (June 16) all day long at Quatre-Bras; and in the battle of Waterloo in his terrible attack upon La Haie-Sainte, he displayed an energy, a boldness, and a disregard of his own life, worthy of his most brilliant days. He had no fewer than 5 horses killed under him. But in the sitting of the chamber of peers, June 22, he openly declared that every thing was lost, that the enemy could come in whenever they pleased, and that the only means of saving the country was to open negotiations. This, at such a time, was little short of treason. He was not employed by the provisional government; and the king, on his return, issued against him and several others, on July 14, a decree of proscription. Ney had vainly hoped that his life would be protected by the terms of the capitulation of Paris. He at first escaped to Auvergne, but was discovered and arrested in October, brought to Paris, and arraigned before a court martial, consisting of Marshals Moncey, Augereau, Masséna, and Jourdan. These old brothers in arms eagerly availed themselves of a legal technicality to declare their incompetency to judge him; and the case was consequently transferred to the court of peers. Here the majority consisted of his political or personal enemies, so that, notwithstanding the able defence of his counsel, Dupin and Berryer, he was sentenced to death on Dec. 6. He now resumed all his self-possession and firmness. On the following morning, after taking a short and touching farewell of his wife and sons, he was marched to the end of the Luxembourg garden; there, placing himself in front of the troops who were to shoot him, throwing his hat away, and pressing his right hand to his heart, he cried: "*Vive la France!* Fellow soldiers, fire here!" He was killed instantly. This execution, which was warranted by no political necessity, deeply wounded the popular feeling; and Armand Carrel echoed the voice of the nation, when, some years later, in the chamber of peers, where he himself had been arraigned, he declared that the death of Ney was an abominable assassination. Ney was buried on the 8th in the cemetery of Père Lachaise. His *Mémoires* (2 vols. 8vo., 1833) were published by his widow and sons, and Dumoulin has given a full account of his trial (*Histoire complète du procès du Maréchal Ney*, 2 vols. 8vo., 1815). Attempts were subsequently made at various times to have the sentence reversed by the chamber of peers; but they failed. It was however cancelled by public opinion, and a bronze statue was erected to him in 1854 on the spot where he was executed. Ney left 4 sons, Joseph Napoléon, Michel, Eugène, and Edgar.—JOSEPH NAPOLÉON, prince of the Moskva, born May 8, 1803, died July 25, 1857. He married in 1828 the daughter of Jacques Laffitte, the banker, was appointed aide-de-camp to the duke of Orleans after the revolution of 1830, and was promoted to a peerage in 1831, but did not take his seat in the chamber until 1841, after solemnly protesting against his father's condemnation. In 1848 he sided with the democratic party, and was a member of the club which sent a "democratic foreign legion" of 1,800 men to aid in the revolution of Baden. He was elected a member of the legislative assembly by the departments of Moselle and Eure-et-Loir in 1849, and attached himself to the party of the prince president. He was one of the first senators created under the empire. After having been colonel of lancers and dragoons, he was appointed brigadier-general in 1853; but he was better known as a patron of arts, literature, and the turf, than as a soldier, having for some time before his death withdrawn from active service. He composed an opera called *Régine*, contributed to the *Revue des deux mondes*, and was one of the original members of the French jockey club. His only daughter is the wife of Count Persigny, French minister at London.—NAPOLÉON HENRI EDGAR, born in Paris, March 20, 1812, was one of the officers of the prince president; and it was to him that the latter addressed the famous letter (April 18, 1849) on the French expedition to Rome, which caused such a sensation in the legislative assembly. In 1852 he became adjutant and first huntsman of the emperor, in 1855 commandant of the legion of honor, and in 1856 brigadier-general; and at the end of 1857, after the death of his brother, the emperor conferred on him the title of prince of the Moskva.

NGAMI, a lake in S. Africa, about 70 m. in circumference, with its centre in lat. 20° 40' S. and long. 22° 40' E. It is of an elongated form, contracting about the middle; its breadth nowhere exceeds 9 m. The N. shore is sandy, low, and barren for about a mile, beyond which the country is well wooded. The opposite shore is elevated, fringed with belts of reeds and bushes, and only accessible in a few places where cattle have broken through. The lake rises and falls 2 or 3 feet, but it is not known whether this is caused by the wind acting on the surface of the water, or by the moon's attraction. The lake is fed by the Tioghe river at its N. W. extremity. This stream, whose source is unknown, is about 40 yards broad, but very deep when at its highest stage. It overflows in June, July, and August, and sometimes later. The Zouga, a broad and sluggish river, issues from the E. extremity of the lake; its width at the outlet is 200 yards. It is stated by the natives that it communicates with the Tioghe by a branch which at certain seasons of the year forces the waters of the Zouga back into the lake. The latter stream, after an E. course of about 300 m., appears to be lost in a vast marsh; but it is thought by some that, like several other African rivers, it continues its course subterraneously, and ultimately finds its way to the sea. Exaggerated reports concerning Lake Ngami reached travellers in S. Africa about the beginning of the 19th century. It was first visited by Livingstone in 1849, and since that time several other Europeans have seen it, among whom was the Swedish traveller Charles John Andersson.—See Andersson's "Lake Ngami" (London and New York, 1856).

NIAGARA, a N. W. co. of N. Y., bounded N. by Lake Ontario and W. by the Niagara river; area, 558 sq. m.; pop. in 1855, 48,282. It is watered by Tonawanda creek on the S. border, and Four, Six, Twelve, and Eighteen Mile creeks (named from their distances from the mouth of Niagara river), Fish, Golden Hill, Cayuga, and other creeks, several of which afford excellent water power. The surface is generally level or slightly undulating, and the soil with some exceptions fertile. The productions in 1855 were 595,297 bushels of wheat, 353,898 of oats, 79,593 of barley, 509,505 of Indian corn, 275,448 of potatoes, 255,997 of apples, 41,117 tons of hay, 1,038,307 lbs. of butter, and 71,448 of cheese. There were 31 brass and copper founderies, 4 furnaces, 24 coach and wagon manufactories, 17 flour mills, 41 saw mills, 4 tanneries, 3 daily and 5 weekly newspapers, 92 churches, and 17,725 pupils attending schools. The county is traversed by the Erie canal, and the Rochester, Lockport, and Niagara Falls, the Buffalo and Lockport branch, the Buffalo and Niagara Falls, and the Canandaigua and Niagara Falls branch railroads. Capital, Lockport.

NIAGARA, a river 33 m. long, forming part of the boundary between the United States and Canada West, and connecting Lake Erie with Lake Ontario. It is the outlet of the former lake, and the channel by which all the waters of the 4 great upper lakes flow toward the gulf of St. Lawrence. In their short passage from Lake Erie to Lake Ontario there is a total descent of 334 feet, leaving the lower lake still 231 feet above the sea. The interruption to the navigation occasioned by the rapid descent of the Niagara river is overcome on the Canadian side by the Welland canal (see Canal, vol. iv. p. 344); and on the American side the communication between tide water and the upper lakes was first effected by the Erie canal. From the N. E. extremity of Lake Erie the Niagara river flows in a northerly direction with a swift current for the first 2 m., and then more gently with a widening current, which divides as a portion passes on each side of Grand island. As these unite below the island, the stream spreads out to 2 or 3 m. in width, and appears like a quiet lake studded with small low islands. About 16 m. from Lake Erie the current grows narrow and begins to descend with great velocity. This is the commencement of the rapids, which continue for about a mile, the waters rolling in great swells as they rush swiftly down among the rocks, accomplishing in this distance a fall of 52 feet. The rapids terminate below in a great cataract, the precipitous descent of which is 164 feet on the American side and 150 on the Canadian. At this point the river, making a curve from W. to N., spreads out to an extreme width of about 4,750 feet. Goat island, which extends down to the brink of the cataract, occupies about one fourth of this space, leaving the river on the American side about 1,100 feet wide, and on the Canadian side about double this width. The line along the verge of the Canadian fall is much longer than the breadth of this portion of the river, by reason of its horse-shoe form, the curve extending up the central part of the current. The waters sweeping down the rapids are carried with great velocity over the edge of the precipice, and form a grand curve as they fall clear of the rocky wall into the deep boiling pool at the base. The space between this sheet of water and the wall widens near the bottom, the strata being there of a loose shaly character, and consequently hollowed out by the continual action of the spray. A cave is thus formed behind the fall, into which on the Canadian side persons can enter and pass by a rough and slippery path toward Goat island. Among the great cataracts of the globe that of Niagara stands preëminent for the enormous volume of water that is carried over so high a precipice. In the mountainous regions of the earth numerous falls are known that descend from far greater heights; but the sublimity of Niagara is in the vast power displayed by a mighty current descending impetuously, first by rushing down the long inclined plane of the rapids, and finally plunging in one unbroken vertical sheet into the deep abyss below. The only outlet of the lakes, whose area exceeds that of all the other lakes upon the globe, its current experiences comparatively little change.—In the vicinity of the falls the scenery presents no features in keeping with the sublimity of the great cataract itself. The river flows from Lake Erie to the head of the rapids through a level and monotonous region; and below the falls the country continues of the same character, interrupted only by the precipitous chasm or gorge excavated by the river to the depth of 150 feet or more below the general surface. The sound of the fall varies greatly with the condition of the atmosphere and the wind. Much of the time it is heard but a little distance off, and again it rolls over the land to the shores of Lake Ontario, and across its waters even to Toronto, 46 m. distant. At the edge of the abyss it is heard in full force, a deep monotonous rumbling like that which a thousand great mills might create with their machinery. In the deep chasm below the fall the current, contracted in width to less than 1,000 feet, is tossed tumultuously about, and forms great whirlpools and eddies as it is borne along its rapidly descending bed. Dangerous as it appears, the river is here crossed by small boats; and a little steamboat, called the Maid of the Mist, navigates this portion of the river, taking passengers up nearly to the foot of the falls. On each side of the gorge the walls rise almost perpendicularly from the talus of fragments piled up along their base, and access to and from the summit is had only by means of stairways constructed at several points. For 7 m. below the falls, the narrow gorge continues, varying in width from 200 to 400 yards. The river then emerges at Lewiston into a lower district, having descended 104 feet from the foot of the cataract. Several objects of interest are met with in this portion of its course. Within 2 m. of the falls is the wire suspension bridge, thrown across the gorge at the height of 258 feet above the water, and supported by towers upon each bank, the centres of which are 800 feet apart. The current itself is here about 350 feet wide. The bridge was constructed in 1855 by Mr. Roebling for the passage of railway trains, and 28 feet below the railway it also sustains a carriage and foot track. From this bridge a fine though distant view is had of the falls. Three miles below the falls the river, bending toward the Canadian side and contracted to a width of about 220 feet, rushes violently into a deep depression in the steep cliff on that side, from which it emerges, turning back almost at a right angle into the American side, still very narrow, but flowing with a gentle current. The remarkable depression in the western bank presents the appearance of having been hollowed out by a great eddy or whirl of the waters, and it is known as "the whirlpool." But the river now flows sluggishly through it, and its slow course in the very narrow chasm below is no doubt occasioned by the great depth to which its bed is excavated in the soft strata at this point. The depression proves to be a portion of the bed of an ancient channel, now filled with diluvium, but traceable over the surface, and supposed to connect with another gorge that cuts the high terrace at St. David's, 4 m. W. of Queenston. The surface of the country, which at the foot of Lake Erie is low, scarcely rising above the level of its waters, gradually becomes more elevated toward the N., till near Lewiston it is 38 feet higher than Lake Erie. The course of the Niagara river is thus in the direction of the ascent of this inclined plane, and must originally have been induced by a depression in the surface. Beyond this there occurs a sudden descent toward Lake Ontario of 250 feet, down to the plateau upon which stands on the American side of the river the village of Lewiston, and on the Canadian that of Queenston. The high land forms a bold terrace looking out upon Lake Ontario, from which it is 7 m. distant, and from its foot the surface descends so gently to the lake that the fall, amounting to 120 feet, is hardly perceptible. The fall made by the river in this lowest portion of its course is only 4 feet; and as this does not impede navigation, Lewiston and Queenston are both ports connecting with Lake Ontario.—The gorge through which the Niagara river flows below the falls, amounting at the terrace to about 366 feet in depth, bears striking evidence to the casual observer of having been excavated by the river itself, and this impression is fully confirmed on a closer examination of the geological features about the falls and the gorge below. Moreover, in the short period, hardly reaching back into the last century, during which observations other than those of passing travellers have been made and preserved, changes have taken place by the falling down of masses of rock, the effect of which has been to cause a slight recession of the cataract, and extend the gorge to the same amount upward toward Lake Erie. Thus in 1818 great fragments descended at the American fall, and again in 1828 at the Horse Shoe fall, in each instance the country being shaken by the concussion as if from an earthquake. The impression of the older residents has been that the line of the falls has receded 50 yards in 40 years; but this is based upon no exact measurements, and until the careful trigonometrical survey made in 1842 under direction of Prof. James Hall, for the state geological survey, no marks nor monuments had been fixed by which the rate of recession could be ascertained. The results of this survey, with the map of the falls, are presented in the state geological report of Prof. Hall. In the same report is a fac-simile of a view of the falls by Father Hennepin, made in the year 1678, and first published in his descriptive work of the country at Utrecht in 1697, and in London the succeeding year. This sketch and the accompanying description are interesting, as they both present a striking feature in the falls which has now entirely disappeared. This is a third fall from the Canadian side toward the east, across the line of the main fall, and caused by a great rock that turned the divided current in this direction. In 1750 the falls were visited by Kalm, a Swedish naturalist, whose description and view were published in the "Gentleman's Magazine" in 1751. He alludes to the rock having fallen down a few years previous, and indicates the spot in his sketch. From such evidences it is certain that changes are and have been taking place, the effect of which in long periods of time would have excavated the great gorge, and in time to come would carry it further up the stream toward Lake Erie. But the rate at which these changes take place cannot be determined with accuracy. The popular estimate of 50 yards recession in 40 years is regarded by those who have given most attention to this subject as greatly exaggerated. Lyell considers that a foot a year is a much more probable conjecture. From the variable nature of the strata over which the river flows, the circumstances that affect the rapidity of the cutting action differ all along its course. At the present site of the falls sheets of a hard limestone rock, of the formation known as the Niagara limestone, cover the surface of the country, and form the edge of the cataract to the depth of between 80 and 90 feet. Under this, extending to the foot of the fall, are the shaly layers of the same formation. All these strata slope downward against the current of the river at the rate of about 25 feet in a mile; and in the rapids above the fall the uppermost layers of the Niagara limestone succeed, one stratum above another, till about 50 feet more is added to the thickness of the formation, when all disappear beneath the outcropping edges of the next series above, which is that of the shales and marls of the Onondaga salt group. In the other direction, toward Lake Ontario, these strata gradually rise to higher levels, till along the great terrace the capping is of the lower 20 feet of the Niagara limestone, below which the shaly strata form the next 80 feet of the steep slope; and next appears a succession of calcareous layers, shales, and sandstones, belonging successively to the Clinton and Medina formations. Through these piles of strata the river has worked its way back, receding probably most rapidly where, as in its present position, the lower portion of the cutting was composed of soft beds, which being hollowed out let down the harder strata above; and less rapidly where the strata near the base were hard sandstones, such as occur in some of the lower groups. The effect of continued recession must be to gradually diminish the height of the falls, both by the rising of the bed of the river at their base and by the slope of the massive limestone to a lower level. The thin-bedded limestones above being swept off, the succeeding shales and marls of the Onondaga salt group must immediately follow, and the falls may then become almost stationary, when their base is at the base of the massive sandstone and their upper line is as now over its upper edge. This, as shown by Prof. Hall, is likely to be the case after a further recession of about 2 m., and the height of the fall must then be reduced to about 80 feet.—Beside the facts referred to above, bearing upon the erosive action of the current, there is conclusive geological evidence that the river has flowed for a distance of full 4 m. below the cataract at a level more than 40 feet above its present position at the head of the falls and this within the present geological period. On both sides of the river, and especially on Goat island, are beds of sand, gravel, and clay, evidently deposited by running water, containing great numbers of fresh water shells of the same genera and species as those now living in the river and deposited along its banks, such as the *unio*, *cyclas*, *limnea*, *planorbis*, *valvata*, and *melania*. These strata reach to the height of 40 feet above the top of the fall, and are met with in occasional patches at the same level near the edges of the precipice for 4 m. below. They show that the waters must have spread over a wide area and been kept back by some high barrier between the whirlpool and Lewiston. This was probably little if any short of the high terrace itself. Among the fossil remains in these deposits, a mammoth's tooth was discovered 11 feet below the surface. The bowlder or drift formation underlies the fluviatile strata, thus referring their formation to the latest geological period.—The most complete accounts of Niagara falls are contained in the report of Prof. Hall already referred to, and in vol. i. of "Travels in North America," by Sir Charles Lyell.

NIASSA. See NYASSA.

NIBELUNGEN-LIED, or NIBELUNGEN-NOTH, an old German epic poem, embodying several cycles of heroic traditions. The author of the latest recension of the poem is entirely unknown, and its date is assigned by Bunsen to about A. D. 1200. The legends which it contains form a large part of the German *Heldensagen*, and are found with various modifications in other Teutonic and Scandinavian poems. In Worms, it records, reigned King Günther over the Burgundians, having two brothers, Gieselher and Gernot, and a sister, Chriemhild, the world's wonder, of whose rare grace and beauty a description is given. She forswears marriage in consequence of a dream; but the gallant Siegfried, the Achilles of both Scandinavian and Teutonic legends, who had slain a dragon, vanquished the ancient fabulous royal race of the Nibelungen, and taken away their immense treasures of gold and gems, comes to Worms to woo her for his bride. He is welcomed, triumphs over all the knights of Burgundy who venture to meet him, wins her heart by his valor, though she sees him only from a grated window, but had begun to despair of success when Günther hears of the beautiful and redoubtable Brunehild, queen of Isenland, and resolves to stake his fortune as her suitor. The condition was that he should engage in 3 combats with her, and if vanquished be put to death. Siegfried accompanies and aids him, being promised the hand of Chriemhild if he should be successful. The united heroes reach their destination after a voyage of 12 days. Brunehild appears in the lists with a shield of beaten gold, so heavy that 4 of her chamberlains can scarcely bear it. Günther is in despair, when the touch and voice of an invisible person by his side gives him courage for the fight. The same person seizes his arm, hurls the spear, and flings the stone, till the martial maid confesses herself vanquished, and bids her vassals do homage to Günther as their lord. Siegfried, the real winner of the contest, who had been made invisible by his magic cap, receives for his reward the hand of Chriemhild, and the two marriages are celebrated amid the utmost pomp and rejoicing. Dissension ensues between the queen and her sister-in-law; Siegfried contrives to obtain the girdle of the former, and to present it to the latter, who afterward tells the whole tale of her husband's valor, and charges her rival with love for him and infidelity. The latter vows revenge, and secures the aid of the fierce and covetous Hagen, who sought the gold and gems of the Nibelungen, and who skilfully draws from Chriemhild the secret of the spot where alone Siegfried was mortal, and soon after treacherously and fatally plunges a lance between his shoulders in a royal chase. After this Chriemhild lived in melancholy at Worms for 13 years, Hagen having sunk all her Nibelungen treasure somewhere in the Rhine. Then Etzel (Attila), king of the Huns, seeks her in marriage, and she consents, in order that she may avenge the death of Siegfried. After 7 years of repose in Hungary she persuades Etzel to invite Günther and his heroes to visit him. They accept, and go with a retinue of 10,000 men, though Hagen forebodes disaster, and though evil omens abound. At the castle of Rüdiger, ambassador of the king, they are hospitably entertained, and Gieselher is betrothed to the host's daughter, who according to the custom greets the guests with a kiss, but falls back shuddering from Hagen. Provided with gifts, they advance into mighty Etzel's land, who receives them with honor; but the queen greets Hagen coldly, who is consequently too suspicious and watchful to be assassinated secretly. A tumult at length ensues, which results in a dreadful battle in which many of the heroes on both sides are slain, and Etzel and Chriemhild are barely rescued from the hall in which the Burgundians were raving with Berserkir rage. The hall is then vainly assailed by 20,000 Huns. Günther seeks a reconciliation, but rejects the proffered terms requiring the surrender of Hagen, and the queen orders the edifice to be set on fire. Six hundred only survive the conflagration by penetrating deep into the walls. The contest is renewed by Rüdiger, and numerous heroes are so nearly matched that they slay each other, until at last of all the Burgundians only Günther and Hagen remain, who are delivered in bonds to Chriemhild. She demands of the latter where the Nibelungen treasure is concealed, but he refuses to betray it so long as one of his lords lives. The head of Günther is struck off, but Hagen still declares that he alone of men knows the secret, and that he will not reveal it. She then grasps the sword of Siegfried, and beheads him by a blow, but the Hunnish warrior Hildebrand disdains to see a hero fall beneath a woman's hand, and slays the queen; and Etzel and Dietrich survive alone to lament the dead.—Notwithstanding the horrors and improbabilities of the poem, the action of which extends over a period of 30 years, it abounds in passages of remarkable beauty and power. The origin of the traditions embodied in it is usually attributed to the Scandinavians. They are contained in the Edda, the Brynhilda, Gudrune, and Sigurd of which are only the personages of the Nibelungen-Lied in more gigantic outlines. But they probably existed from an early period among the ancient Germans, and both the sagas and the lays may have been but different versions of the same tradition. In both the hero kills a dragon and renders himself invulnerable; in both he becomes master of a priceless treasure. Brynhilda appears in both: in the Nibelungen as a mortal woman endowed with supernatural strength; in the Edda as a Valkyre watching over the fate of battles, plunged into a magic sleep by Odin, released from the spell by Sigurd, by whom she is loved and forgotten. The spirit of the Edda is fiercer and more savage than that of the Nibelungen, and wholly pagan, while the latter is marked by the milder influence of Christian chivalry. A striking discrepancy exists between the Attila of history and Latin tradition and the Attila of the northern lays. In the latter, though "the scourge of God" does not become a Christian, he is endowed with every Christian virtue, and even shows an inclination to be converted. The *Klage*, or lament, which forms an appendix to the Nibelungen, is a species of epilogue in which the disasters of the story are reviewed. In its most remarkable passage Chriemhild receives divine pardon, because the motive which had led her to the guilt of blood had been reverence for truth. This is the key to the character of the whole poem, the pervading sentiment of which is truthfulness and sincerity. In the Volsunga Saga the whole interest is concentrated in the unhappy and terrible passion of Brynhilda; the genius of the North finds in her Amazonian heroism its deepest and fairest expression; but the charm of the Nibelungen is its simplicity and truth.—The researches concerning the origin of the poem make it probable that at different times and places 5 groups of traditional legends came into existence, relating respectively to Siegfried and Brunehild, Günther and his sisters, Hagen, Dietrich, and Etzel. These were related to and modified by each other, until they made one cycle of popular songs. The form of the principal of these songs was much changed in the latter part of the 12th century in consequence of the prevalent culture of poetry during the Swabian period, and wandering minstrels gave to them more and more of a rhapsodical and epic character. Early in the 13th century in Austria a noble poet, acquainted with the best courtly productions of the time, combined the multifarious songs and rhapsodies into a regular epical whole, exhibiting a masterly genius in his conception of the plan and in the skill with which he reduced innumerable characters and events to an essential though not formal unity. It seems to have been less popular in the middle ages than other romances, being disliked by the clergy on account of its heathenish character, and by the courtly poets on account of its rudeness. It is substantially the work of an age anterior to Christianity, civilization, and the more refined customs of chivalry. The remodelling of the work has been twice attempted within a few years, but the form which it had previously assumed was not superseded. Holtzmann describes 27 manuscripts of the poem, 10 of which are complete. They are divided into two groups, the elder bearing the title of *Nibelungen-Lied* and the more modern that of *Nibelungen-Noth*, both however of essentially the same contents. The oldest manuscript extant belongs to the 13th century, and more than 20 are older than the 16th. It was not, like Wolfram's *Parcival*, one of the early printed books, was known in the 16th century only to a few historians, and was almost forgotten in the 17th century. Bodmer was the first to revive an interest in it by publishing fragments under the title of *Chriemhilden Rache* (1751). The first complete edition was produced by C. H. Müller (1782). The romantic school of Germany raised it to the highest honor. Von der Hagen was the first to thoroughly treat it, and published it with a glossary (1807). Lachmann distinguished 3 versions in the different manuscripts, the oldest of which he separated into 20 distinct epical songs, and published a critical edition (1826). The principal other versions have since been printed. The contents of the poem were meantime investigated by Grimm, Lachmann, Göttling, Mone, Spaun, and others. The best translations into modern German are by Simrock (1827) and Pfitzer (1842-'3). There are English translations by Birch (1848), and Letsam (1850).

NIBOYET, Eugénie, a French authoress and social reformer, born about 1804. She commenced her literary career by translating the works of Mrs. Barbauld, Miss Edgeworth, and Mrs. L. M. Child. She afterward wrote educational books, such as *Dieu manifesté par les œuvres de la création* (4 vols. 18mo., 1842), which received a prize from the society of Christian morals, and several novels, among which were *Les deux frères* (1839), and *Catherine II.* (1847). In the meanwhile she became a prominent advocate of prison reform, contributed to the establishment of a philanthropic bank, and in 1844 founded a socialistic newspaper, *La paix des deux mondes*, in which questions relating to industry, trade, science, and literature were freely discussed. On the breaking out of the revolution of 1848, she came forward to advocate the rights of women, opened a woman's club, and issued a periodical entitled *La voix des femmes*. The club was closed by the police, and her journal changed its name to that of *L'avenir*. It was soon discontinued, and Mme. Niboyet retired to private life. Since then her only appearance before the public has been as the writer of a preface to a novel entitled *Les amours d'un poëte*, by her son, Paulin Niboyet.

NICANDER, a Greek poet and grammarian, who probably flourished in the middle of the 2d century B. C. He was a native of Claros in Ionia, and succeeded his father as priest in the temple of Apollo. He was a voluminous author, but none of his works have come down to us except two poetical treatises, one on venomous animals, the other on poisons and their antidotes. The earliest edition is that of Venice (1499); the best that of J. G. Schneider (Halle, 1792; Leipsic, 1816).

NICARAGUA, a republic of Central America, formerly a province of the royal audiencia of Guatemala, lying between lat. 10° 45′ and 15° N., long. 83° 20′ and 87° 30′ W.; area (including the Mosquito shore), about 50,000 sq. m. It is bounded E. by the Caribbean sea, from Cape Gracias á Dios at the mouth of the Rio Wanks or Segovia, southward to the port of San Juan, at the mouth of the river of the same name; N. by the republic of Honduras, from which it is separated, for most of its course, by the Rio Wanks; W. by the Pacific ocean. The dividing line between the republic and Costa Rica on the S. was for a long time a subject of dispute, but was settled by convention between the two states, April 15, 1858, as follows: starting from Punta de Castilla, or Punta Arenas, on the S. shore of the harbor of San Juan, and thence following the right bank of the river San Juan to within 3 m. of the old fort known as Castillo Viejo; at this point the line falls back 2 m. from the river, preserving that distance from the stream to the point whence it issues from Lake Nicaragua, following along the southern shore of that lake, at an equal distance inland, until it strikes the river Sapoa, flowing into the lake, and thence due W. to the bay of Salinas, on the Pacific. A claim to a considerable part of the territory thus defined, embracing the entire Atlantic coast, and extending indefinitely inland, was set up some years ago by Great Britain, on behalf of the "king of the Mosquitos;" but by a convention bearing date Aug. 28, 1860, Great Britain finally gave up her pretensions, and the "Mosquito Shore" has accordingly devolved under the sovereignty of Nicaragua.—Politically, Nicaragua is divided into 5 departments, as follows:

Departments.	Population.	Capitals.
Meridional, or Rivas	20,000	Rivas.
Oriental, or Granada	95,000	Granada.
Occidental, or Leon	90,000	Leon.
Septentrional, or Segovia	12,000	Segovia.
Matagalpa	40,000	Matagalpa.
Total	257,000	

The population here given is the result arrived at, in round numbers, by a census attempted in 1846. It was only partially successful, as a large part of the people supposed that it was preliminary to some military conscription or tax levy. Making due allowances for deficiencies in the census of that year, and for increase since, we may estimate the actual population of the state, in round numbers, at 300,000, divided approximately as follows: whites, 30,000; negroes, 18,000; Indians, 96,000; mixed, 156,000; total, 300,000. The capital is Managua. In the census above referred to, the following were given as the approximate populations of the principal towns of the state: Acoyapa, 500; Chichigalpa, 2,800; Chinandega, 11,000; Chinandega Viejo, 3,000; Granada, 10,000; Leon, including Subtiaba, 30,000; Managua, 12,000; Masaya, 15,000; Matagalpa, 2,000; Nagarote, 1,800; Nicaragua, 8,000; Posultega, 900; Pueblo Nuevo, 2,900; Realejo, 1,000; Segovia, 8,000; Somotillo, 2,000; Souci, 2,500; Telica, 1,000; Villa Nueva, 1,000. The females greatly exceed the males in number. In the department Occidental, according to the census, the proportion was as three to two. It is difficult to account for this disparity, except by supposing it to have been the result of the civil wars which, for some years previously, had afflicted that portion of the state. It should nevertheless be observed, that throughout all parts of Central America there is a considerable preponderance of females over males. Most of the people of Nicaragua live in towns or villages, many of them going 2, 4, and 6 miles daily to labor in their fields, starting before day and returning at night. Their plantations, *haciendas*, *hattos*, *huertas*, *ranchos*, and *chacras*, are scattered pretty equally over the country, and are often reached by paths so obscure as almost wholly to escape the notice of travellers, who, passing through what appears to be a continuous forest from one town to another, are liable to fall into the error of supposing the country to be almost wholly without inhabitants.—Placed on a narrow isthmus between the two oceans, its ports opening to Europe on one hand and to Asia on the other, midway between the northern and southern continents of America, Nicaragua seems to realize the ancient idea of the geographical centre of the world. These geographical advantages are rendered especially interesting and important from the interior features of the country, which are supposed to afford facilities for water communication between the seas, superior to those of any other part of the continent. These features are principally determined by two ranges of mountains which traverse the state in a direction nearly due N. W. and S. E. One of these, which may be called the volcanic or Pacific coast range, starts in the high lands of Quesaltenango in Guatemala, and, extending through San Salvador and Nicaragua, terminates in the great mountain group or nucleus of Costa Rica. It follows the general direction of the coast, sometimes rising in lofty volcanic cones, but generally sustaining the character of a high ridge, subsiding in places into low hills and plains of slight elevation. It preserves a nearly uniform distance from the sea of from 10 to 20 m., and consequently there are no considerable streams falling from it into the Pacific. It seems to have been the principal line of volcanic action, and in Nicaragua is marked by the volcanoes of Coseguina, El Viejo, Santa Clara, Telica, Axusco, Las Pilas, Orota, Momotombo, Masaya, Mombacho, Ometepec, and Madeira, and by numerous extinct craters, surrounded by vast beds of lava and deposits of scoriæ. The second, or principal mountain range, the great backbone of the continent and the true Cordilleras, enters the state from Honduras, in the department of Nueva Segovia, and extends due S. E. until it strikes the San Juan river at a point about 50 m. above its mouth. It sends out numerous spurs or dependent ranges toward the Atlantic, between which flow down the many considerable streams that intersect what is called the Mosquito shore. Between these two ranges of mountains is formed a great interior basin, not far from 300 m. long by 100 m. wide, in the centre of which are the broad and beautiful lakes of Nicaragua and Managua, the characteristic and most important physical features of the country. These lakes receive the waters which flow down from the mountains on either hand, and discharge them through a single outlet, the river San Juan flowing through a narrow break in the Cordilleras into the Atlantic. Some of the streams falling into these lakes from the north are of considerable size, and furnish a supply of water, in excess of evaporation, which could not be sensibly affected by drains for artificial purposes. Lake Nicaragua, the ancient Cocibolca, is the largest body of water in Central America. On its S. shore, near the head of the lake, stands the ancient city of Granada, lately the rival of Leon, and once the most important commercial town in the republic. Flowing into the lake at its extreme S. extremity, nearly at the same point where the Rio San Juan (the ancient El Desasuadero) commences its course, is the considerable Rio Frio, which has its origin near the base of the great volcano of Cartago, in Costa Rica. It flows through an unexplored region, inhabited by an unconquered and savage tribe of Indians, called Guatusos, of whose ferocity the most extraordinary stories are related. (See GUATUSOS.) The N. shore of the lake, called Chontales, is undulating, abounding in broad savannas, well adapted for grazing and supporting large herds of cattle. The water of the lake in most places shoals very gradually, and it is only at a few points that vessels of considerable size can approach the shore. Still, its general depth, for all purposes of navigation, is ample, except near its outlet, where for some miles it does not exceed 5 or 10 feet. There are points, however, where the depth of water is not less than 40 fathoms. As already observed, the sole outlet of the great Nicaragua basin, and of the lakes which occupy it, is the river San Juan, debouching into the Caribbean sea at the port of San Juan, or Greytown. This river is a magnificent stream, but its capacities have been greatly exaggerated. It flows from the S. E. extremity of Lake Nicaragua, nearly due E. to the ocean. With its windings, it is 119 m. long. The body of water which passes through it varies greatly at different seasons of the year; it is of course greatest during what is called the "rainy season," that is to say, from May to October. Several considerable streams enter the San Juan, the largest of which are the San Carlos and Serapiqui, both rising in the high lands of Costa Rica. The streams flowing in from the N. are comparatively small, indicating that the mountains are not far distant in that direction, and that upon that side the valley is narrow. The Serapiqui is ascended by canoes to a point about 20 m. above its mouth, where commences the road, or rather mule path, to San José, the capital of Costa Rica. About one third of the way from the lake to the ocean, on the S. bank of the river, are the ruins of the old fort or castle of San Juan, captured by the English in 1780. At one time, beside this fort, another at the head of the river (San Carlos), and a third at its mouth, the Spaniards kept up no fewer than 12 military stations on its banks. The width of the river varies from 100 to 400 yards, and its depth from 2 to 20 feet. It is interrupted by 5 rapids, viz.: Rapides del Toro, del Castillo, de los Valos, del Mico, and Machuca. The Machuca rapids are the largest, and in many respects the worst in the river. For the distance of nearly half a mile the stream is spread over a wide and crooked bed, full of large rocks projecting above the surface, between which the water rushes with the greatest violence. They are considered dangerous by the native boatmen, who are only enabled to ascend them by keeping close to the N. shore, where the current is weakest, and the bed of the river least obstructed. Here the *bongos*, or native boats, are pushed up by main force. The late transit company lost a number of their small steamers on these rapids, which, without great artificial improvement, must remain an insuperable obstacle to regular steam navigation on the river. The rapids of El Castillo are short, and deserve rather the name of falls. Here the water pours over an abrupt ledge of rocks, falling 8 feet in but little more than the same number of yards. Bongos are unloaded here, and the empty boats tracked past by men stationed here for the purpose. The steamers of the transit company did not attempt to pass these rapids, the passengers and merchandise being transferred by means of a tram road to vessels above. The remaining rapids, although formidable obstacles to navigation, do not require a special description. The banks of the San Juan for 20 m. from the lake, and for about the same distance above its mouth, are low and swampy, lined with palms, canes, and a variety of long coarse grass called *gamalote*. Elsewhere the banks are generally firm, in some places rocky, from 6 to 20 feet high, and above the reach of overflows. They are everywhere covered with a thick forest of large trees, draped all over with *lianes* or woodbines, which, with the thousand varieties of tropical plants, form dense walls of verdure on both sides of the stream. The soil of the river valley seems uniformly fertile, and capable of producing abundantly all tropical staples. Like the Atrato, the San Juan river has formed a delta at its mouth, through which it flows for 18 m., reaching the sea through several channels. The largest of these is the Colorado channel, which opens directly into the ocean; the next in size is that which bears the name of the river, and flows into the harbor of San Juan. Between the two is a smaller one called Tauro. This delta is a maze of low grounds, swamps, creeks, and lagoons, the haunt of the manatee and alligator, and the home of innumerable varieties of water fowl. The port of San Juan (Greytown) derives its principal importance from the fact that it is the only possible eastern terminus for the proposed interoceanic canal, by way of the river San Juan and the Nicaraguan lakes. It is small but well protected, and until within the past year (1859) was easy of entrance and exit. The sea has now broken through the sand bank or spit, called Punta Arenas, which forms the outer protection of the harbor, and has filled up the former entrance, so that it carries only from 7 to 9 feet of water. Vessels now find it impossible to enter, and unless the obstruction is removed by art or the operation of natural causes, the port may be considered destroyed. On the Pacific the best port of the republic is that of Realejo, formerly Posesion, which is capacious and secure, but difficult of entrance. The little bay of San Juan del Sur is small and insecure, and scarcely deserves the name of harbor. The same may be said of the so called ports of Brito and Tamaranda. A good port is said to exist on Salinas bay.—The climate of Nicaragua, except among the mountains of Chontales and Segovia, is essentially tropical, but considerably modified by a variety of circumstances. The absence of high mountains toward the Atlantic, and the broad expanse of its lakes, permit the trade winds here to sweep entirely across the continent, and to give to the country a degree of ventilation agreeable to the senses and favorable to health. The region toward the Atlantic is unquestionably warmer, more humid, and less salubrious than that of the interior, and of the country bordering on the Pacific. The Nicaragua basin proper, within which the bulk of the population is concentrated, has two distinctly marked seasons, the wet and the dry, the former of which is called summer, the latter winter. The wet season commences in May and lasts until November, during which time, but usually near its commencement and its close, rains of some days' duration occasionally occur, and showers are common. The latter do not often happen except late in the afternoon, or during the night. They are seldom of long continuance, and often days and weeks elapse, during what is called the rainy season, without a cloud obscuring the sky. Throughout this season the verdure and the crops, which during the dry season become sere and withered, appear in full luxuriance. The temperature is very equable, differing a little according to locality, but preserving a very nearly uniform range of from 78° to 88° F., occasionally sinking to 70° in the night and rising to 90° in the afternoon. During the dry season, from November to May, the temperature is lower, the nights are positively cool, and the winds occasionally chilling. The sky is cloudless, and trifling showers fall at rare intervals. The fields become parched and dry, and the cattle are driven to the borders of the streams for pasturage, while in the towns the dust becomes almost insufferable. It penetrates everywhere, sifting through the crevices of the tiled roofs in showers, and sweeping in clouds through the unglazed windows. This season is esteemed the healthiest of the year. Its effect is practically that of a northern winter, checking and destroying that rank and ephemeral vegetation which, continually renewed where the rains are constant as at Panama, forms dense, dank jungles, the birthplaces and homes of malaria and death. For the year ending September, 1851, the thermometer at the town of Rivas gave the following results: mean highest, 86.45°; mean lowest, 71.15°; mean average for the year, 77.42°; mean range, 15.8°. The amount of rain which fell from May to November inclusive was 90.8 inches; from December to April inclusive, 7.41 inches; total for the year, 97.71 inches. None fell in February, but 26.64 inches fell in July, and 17.86 inches in October.—The natural resources of Nicaragua are great, but they have been very imperfectly developed. The portion of land brought into cultivation is relatively small, but ample for the support of its population. There is no difficulty in increasing the amount to an indefinite extent, for the forests are easily removed, and genial nature yields rich harvests to the husbandman. There are many cattle estates, particularly in Chontales, Matagalpa, and Segovia, which cover wide tracts of country; some of these have no fewer than 10,000 or 15,000 head of cattle each. The cattle are generally fine, quite equal to those of the United States. Among the staples of the state, and which are produced in great perfection, are cacao, sugar, cotton, coffee, indigo, tobacco, rice, and maize or Indian corn. The sugar cane used in the country is indigenous, softer and smaller than the Asiatic varieties, but richer in juice. Two crops, and under favorable circumstances three crops a year are taken, and the cane requires replanting but once in 12 or 14 years. Cotton of excellent quality is grown in the country, and formerly as many as 50,000 bales were exported annually. The export has now ceased. Cacao, only equalled by that of Soconosco, on the coast of Guatemala (which was once monopolized for the use of the royal household of Spain), is cultivated in considerable quantities. It is an article of general consumption among the inhabitants, and consequently commands so high a price that it will not bear exportation, even though it could be obtained in requisite quantities. Much time and great outlay are required in getting a cacao plantation into paying operation. Few have now the requisite capital; and these few are not likely, in consequence of the distracted condition of public affairs, to venture upon any investment. Under a stable condition of things, and by the opening of a steady and adequate channel to market, the cultivation of cacao would become of the first importance. The trees give two principal crops in the year. It is sold at $15 to $20 per quintal, while the Guayaquil is worth but $5 or $6. Indigo was formerly cultivated to a considerable extent, but has of late years much fallen off; and numbers of fine indigo estates in various parts of the republic have been abandoned. The plant cultivated for the manufacture of indigo is the *jiquilite* (*indigofera disperma*), an indigenous plant, the product of which is of a very excellent quality. The export of indigo from Nicaragua once amounted to 5,000 bales of 150 lbs. each. It is impossible to say what is its present amount; probably not more than from 1,000 to 2,000 bales. Wheat and the other cereals, as well as the fruits of the temperate zone, flourish in the elevated districts of Segovia and Chontales. In short, nearly all the edibles and fruits of the tropics are produced naturally, or may be cultivated in great perfection—plantains, bananas, beans, chile, tomatoes, breadfruit, arrowroot, okra, citrons, oranges, limes, lemons, pineapples, mameys, anonas or chirimoyas, guavas, cocoanuts, and a hundred other varieties of plants and fruits. Among the commercial vegetable productions may be mentioned sarsaparilla, annotto, aloes, ipecacuanha, ginger, vanilla, cowhage, copal, gum arabic, copaiba, caoutchouc, dragon's blood, and vanglo or oil paint. Among the valuable trees are mahogany, logwood, Brazil and Nicaragua wood, lignum vitæ, fustic, yellow sanders, pine (on the heights), dragon's blood tree, silk-cotton tree, oak, copal tree, cedar, buttonwood, iron-wood, rosewood, and calabash. Of these, Brazil wood, cedar, and mahogany are found in almost inexhaustible quantities. The cedar is a large tree, like the red cedar of the north in nothing except color and durability; in solidity and other respects it closely resembles the black walnut. Five or six cargoes of Brazil wood were exported from Realejo yearly, and a larger quantity from San Juan. A quantity of cedar plank is also exported to South America. The raising of cattle and the production of cheese are important items in the actual resources of Nicaragua. The cheese is for common consumption, and great quantities are used.—The northern districts, Segovia, Matagalpa, and Chontales, adjoin the great metalliferous mountain region of Honduras, with which they correspond in climate, and with which they are geologically connected. They are rich in gold, silver, copper, iron, and lead, the ores of which are abundant and readily worked. Under the Spanish dominion, the mines of these districts yielded large returns; but they have greatly diminished, and, unless taken up by foreign enterprise, capital, and intelligence, are likely to fall into insignificance. No data exist for estimating the present value of their produce, but it probably does not exceed $250,000 annually. It is stated that deposits of coal resembling anthracite have been found in Chontales, but the evidence on that point is not conclusive.—The commerce of Nicaragua is in a very depressed condition, and there are no data for calculating the imports or exports of the state with any degree of accuracy. The advance which the country made in these respects during the existence of the California transit, from 1850 to 1855, has been followed by more than a corresponding decline, the consequence of domestic dissensions and foreign invasion. The revenues of the country, derived from duties on imports, are merely nominal, and the support of government rests mainly on the returns of the taxes levied on tobacco and *aguardiente* or native rum, both of which are government *estancias* or monopolies. The republic has a considerable interior debt, and its proportion of the debt of the old federation, amounting to about $500,000, remains as yet unpaid. With boundless natural resources, agricultural and mineral, a fine climate, and an unsurpassed geographical position, Nicaragua nevertheless now stands at the foot of the list of the Central American states in all that constitutes national prosperity. Education is at an exceedingly low ebb, and although both Granada and Leon have universities, they deserve to rank but little higher than the common schools of the United States.—The constitution is thoroughly republican in its provisions. The president is elective directly by the people, for the term of 2 years, and is ineligible for 2 consecutive terms. The legislative power is vested in an assembly consisting of a senate and house of representatives; the former is composed of 2 members from each of the departments into which the republic is divided, holding their office for 4 years. The representatives are apportioned on the basis of one for every 20,000 inhabitants; they hold their offices for 2 years, and are eligible for only 2 successive terms. The acts of the assembly require a vote of two thirds of each branch, and the approval of the president. All native-born males 20 years of age are voters; and married males, and persons who have obtained a scientific degree or acquired a liberal profession, have the privileges of electors at the age of 18. All persons convicted of criminal offences, who traffic in slaves, or accept titles or employment from other governments, forfeit their citizenship. An individual who accepts the position of personal servant to another is incapable, for the time being, of exercising his political privileges. The Roman Catholic religion is recognized by the state, but the private exercise of all others is tolerated. Liberty of speech and of the press is guaranteed, but individuals may be arraigned for their abuse. The right of petition, inviolability of domicile, and security of seal are also recognized, and placed beyond the reach of the legislative and administrative powers. The judiciary consists of a supreme court, the members of which are named by the house of representatives and confirmed by the senate, 3 in each department, who hold their offices for 4 years, but are always eligible for reëlection. One in each department is designated as presiding judge, and the president judges, meeting annually in the capital, constitute a court of appeal or final resort. Measures are now (1860) on foot for a revision of this constitution, which has been several times suspended during the troubles of the past 10 years; but it is not likely that it will be materially modified in the respects here indicated.—Nicaragua was discovered in 1521 by Gil Gonzales de Avila, who reached it by way of the Pacific, embarking at Panama. He penetrated from its southern extremity, at the head of a small force, to a point near the present site of Granada, where he encountered such large bodies of opponents that he thought it prudent to retrace his steps. On his return to Spain, with considerable booty, to secure reënforcements for the reduction of the country, Pedro Arias de Avila, the wily and unscrupulous governor of Panama, resolving to anticipate him in the enterprise, sent out to that region a large force under Francisco Fernandez de Cordova, who in 1522 founded the city of Granada on Lake Nicaragua, and subsequently in the same year the city of Leon on Lake Managua. Pedro Arias became the first governor of the country, and was succeeded by Rodrigo de Contreras, his son-in-law, who was soon recalled to Spain to answer charges of cruelty to the Indians. In his absence, his son Fernandez de Contreras revolted against the authority of the crown, and, after obtaining complete possession of the country, conceived the idea of separating the audiencia of Tierra Firme (now New Granada) and Peru from the Spanish dominion. He reduced Panama, and was on his way to capture Nombre de Dios, the key of the highway to Peru, when he encountered misfortunes which ended in his death. After this event, Nicaragua, attached to the captain-generalcy or audiencia of Guatemala, remained in general peace, disturbed only by occasional visits from the buccaneers, who penetrated into it from both oceans, until the outbreak of the revolution of 1821, which resulted in its independence, in common with that of the other provinces of the audiencia. This result was not accomplished without a severe struggle. The bishop of the province, supported by the more zealous adherents of the church, the aristocracy, and the officers of the crown, openly resisted the popular movement. A desperate contest ensued in the city of Leon, the capital, with every circumstance of ferocity and barbarism. Street was arrayed against street, and father against son. Partisans flocked in from the surrounding towns and ranked themselves with the contending factions. The contest was prolonged with varying success for 114 days, during which the best built portions of the city were destroyed; 1,000 houses, it is said, were burned in a single night. The struggle was finally ended by the intervention of the liberals of San Salvador, and Nicaragua took its place as the second state in importance in the federal republic of Central America, to which it remained attached until the formal dissolution of the republic in 1839. In the interval it suffered much from the partisan struggles which distracted the country, and which were kept up after the separation of the states, and with alternate success, by the rival factions. On the whole, however, the state adhered to what in Central America is called the liberal as distinguished from the servile party, and supported consistently the various plans that were suggested for reorganizing the federation. In 1847-'8 it became involved in a dispute with Great Britain regarding the Mosquito shore, but more particularly the port of San Juan del Norte, its only port on the Atlantic, which was seized by the British in Dec. 1847, under pretext that it belonged to the Mosquito king. In Jan. 1848, a Nicaraguan force descended the San Juan river, dispersed the small guard left by the English, and reoccupied the port. When this circumstance became known in Jamaica, two British vessels of war, the Alarm and Vixen, under command of Capt. Loch, were despatched to San Juan, which was at once evacuated by the Nicaraguans, who retired up the river to a point near the mouth of the Serapiqui river, whither they were followed by the English, and routed with great loss. Capt. Loch pressed forward to Lake Nicaragua, and from the little island of Cabi, in front of Granada, dictated the terms of a convention, whereby Nicaragua agreed not to disturb the *status quo* of San Juan, over which she has since exercised no authority, although claiming her right of sovereignty. The dispute has now (1860) been settled by a treaty with Great Britain which constitutes San Juan a free port under the sovereignty of Nicaragua. In 1855 the country became involved in a civil war, and divided into two governments; the one, professing to be liberal, having its seat in Leon, the other in Granada. An obstinate struggle ensued between the factions, which finally resulted in favor of the liberals, who had meantime called in the aid of Col. William Walker of California, supported by a considerable body of foreign adventurers. The decisive blow in the contest was the surprise of the city of Granada by Walker, Oct. 13, 1855. Soon after this event, dissensions arose between the successful party and its foreign auxiliaries; whereupon Walker, now promoted to the rank of general, assumed the supreme power under the title of president. For a short time, during which he received large accessions to his forces from abroad, his position seemed secured. But an attempt to establish slavery among a population, nine tenths of whom were of mixed blood, combined with the disaffection of the party which had invited him to the country, and the hostility of the holders of the route of interoceanic transit, whose rights he had annulled, rapidly undermined his power, which was finally completely overthrown by a coalition of the other states of Central America. Walker's force, reduced to fewer than 200 men, surrendered at Rivas, May 1, 1857, since which time the state has remained in comparative quiet, only interrupted by various unsuccessful attempts of Walker and his partisans to effect a lodgment in the country. At present, with her boundary dispute with Costa Rica settled, her rights over the Mosquito shore definitively recognized, and the rancor of local partisanship much softened down under the severe teachings of her past history, there seems to be no good reason, outside of the alleged incapacity of a mixed race for self-government, why Nicaragua should not assume her rank as the first state of Central America, to which she is entitled by her geographical position and her resources.

NICARAGUA, Lake, a large body of fresh water occupying the heart of the republic of Nicaragua. It is 120 m. long, and varies from 30 to 50 m. in width. It has an elevation at mean stage of water of 111 feet 5 inches above low tide in the Pacific, from which it is separated on the W. by a low ridge or range of hills, which subside at one point to an elevation of but 48 feet above the lake level. The strip of land intervening between the lake and ocean varies from 12 to 30 m. in width. The lake has numerous tributaries, chiefly from the N., the largest of which are the rivers Mayales and Malacoloja. The streams falling into it from the S. are few and small, with the exception of the unexplored Rio Frio. It is connected with the superior Lake Managua by a narrow arm or *estero* called Estero de Panaloya, communicating with a short stream, frequently dry, called Rio Tipitapa, the proper outlet of Lake Managua. The N. E. trade winds from the Caribbean sea reach the lake, and when they are strong the waves become high, and roll in with all the majesty of the ocean. At such times, the water is piled up, as it were, on the southern shore, occasionally producing overflows of the low grounds. As the trade winds are intermittent, blowing freshly in the evening, and subsiding toward morning, the waters of the lake seem to rise and fall accordingly; and this circumstance gave birth to the notion, entertained and promulgated by the early chroniclers, that the lake had a regular tide like that of the sea. Some of them imagined, in consequence, that it communicated with the ocean by a subterranean channel. The lake has a great number of islands, some isolated, but most in picturesque clusters, greatly diversifying its surface. The largest are Ometepec, Zapatero, and Solentanami. The first named is distinguished by two high volcanoes, from which it derives its name: *ome* in the Nahuatl or Mexican language signifying two, and *tepec*, mountain; *i. e.*, island of the two mountains. Zapatero is now without inhabitants, but has extensive ruins, monolithic idols, and other evidences of a large ancient population. The volcano of Mombacho stands on the N. W. border of the lake, boldly projecting into the water. At its foot is a cluster of volcanic islets called the Corales, several hundreds in number and of surpassing loveliness. Indeed, the entire scenery of the lake, with its singular volcanic features, joined with the tropical luxuriance of the shores and islands, is equally remarkable for its grandeur and beauty. In these respects it is probably unrivalled by any similar body of water on the continent. Considered in an economic point of view, this lake is also invested with great interest. It is unquestionably the only body of water capable of supplying the summit levels of any canal that may be constructed across this continent; and whenever the requirements of commerce shall demand such a work, this circumstance must determine its course through Lake Nicaragua. The supply of water is amply sufficient for a canal of whatever dimensions called for by the exigencies of commerce. Observations made at the outlet of the lake, at its lowest stage of water in the year 1851, showed that the discharge was 715,800 cubic feet per minute. At the highest stage it was somewhat more than double that amount.

NICARAGUA WOOD. See BRAZIL WOOD.

NICARAGUAN INTEROCEANIC CANAL. The project of uniting the Atlantic and Pacific oceans by means of a canal through the territories of Nicaragua, with the aids afforded by the river San Juan and Lake Nicaragua, began to be entertained as soon as it was found that there existed no natural water communication between the seas. As early as 1551, the historian Gomara had indicated the 4 lines which have since been regarded as offering the greatest facilities for the purpose, viz.: at Darien, Panama, Nicaragua, and Tehuantepec. There were difficulties, he said, "and even mountains in the way; but," he added, "there are likewise hands; let only the resolve be formed to make the passage, and it can be made. If inclination be not wanting, there will be no want of means; the Indies, to which the passage is to be made, will supply them. To a king of Spain, with the wealth of the Indies at his command, when the object is the spice trade, that which is possible is also easy." But, although occupying so large a share of the attention of all maritime nations, and furnishing a subject for numerous essays in every language in Europe, yet it was not until after the discovery of gold in California that the question of a canal assumed a practical form, or that of its feasibility was accurately determined. In 1851 a complete survey was made of the river San Juan, Lake Nicaragua, and the isthmus intervening between the lake and the Pacific, by Col. Childs, under the direction of the "Atlantic and Pacific Ship Canal Company." Until then, it had always been assumed that the river San Juan, as well as Lake Nicaragua, could easily be made navigable for ships, and that the only obstacle to be overcome was the narrow strip of land between the lake and the ocean. Hence, all the so called surveys were confined to that point. One of these was made under orders of the Spanish government, in 1781, by Don Manuel Galisteo; another, and that best known, by Mr. John Baily, under the direction of the government of Central America, in 1838. An intermediate examination seems to have been made early in the present century, the results of which are given in Thompson's "Guatemala." The following table shows the distances, elevations, &c., on the various lines followed by these explorers:

Authorities.	Distance from lake to ocean.		Greatest elevation above ocean.	Greatest elevation above lake.
	Miles.	Feet.	Feet.	Feet.
Galisteo, 1781	17	900	272	184
Quoted by Thompson.........	17	880	296	154
Baily, 1838	16	780	615	487
Childs, 1851	18	588	159	47½

As the survey of Col. Childs is the only one which can be accepted as conforming to modern engineering requirements, it will be enough to present the detailed results at which he arrived. The line proposed by him, and on which all his calculations and estimates were based, commences at the little port of Brito on the Pacific, and passes across the isthmus between the ocean and the lake, to the mouth of a small stream called the Rio Lajas, flowing into the latter; thence across Lake Nicaragua to its outlet, and down the valley of the Rio San Juan to the port of the same name on the Atlantic. The length of this line was found to be 194⅞ miles, as follows:

	Miles.
Western Division—Canal from the port of Brito on the Pacific, through the valleys of the Rio Grande and Rio Lajas, flowing into Lake Nicaragua	18.588
Middle Division—Through Lake Nicaragua, from the mouth of the Rio Lajas to San Carlos, at the head of the San Juan river	56.500
Eastern Division—First Section: Slack water navigation on San Juan river, from San Carlos to a point on the river nearly opposite the mouth of the Rio Serapiqui..................................	90.800
Second Section: Canal from point last named to port of San Juan del Norte............................	28.505
Total, as above..................................	194.893

The dimensions of the canal were designed to be: depth, 17 feet; excavations in earth, 50 feet wide at bottom, 86 feet wide at 9 feet above bottom, and 118 feet wide at surface of water; excavations in rock, 50 feet wide at bottom, 77 feet wide at 9 feet above bottom, and 78½ feet wide at surface of water. The construction of the canal on this plan contemplates supplying the western division, from the lake to the sea, with water from the lake. It would, therefore, be necessary to commence the work on the lake at a point where the water is 17 feet deep at mean level. This point is opposite the mouth of the Rio Lajas, and 25 chains from the shore. From this point, for a distance of 1½ m., partly along the Rio Lajas, the excavation would be principally in earth; but beyond this, for a distance of 5½ m., which carries the line beyond the summit, ¾ of the excavations would be in trap rock; that is to say, the deepest excavation or open cut would be 64½ feet (summit, 47½ feet + depth of canal, 17 feet = 64½ feet), and involve the removal of 1,800,000 cubic yards of earth, and 3,878,000 cubic yards of rock. The excavation and construction on this 5½ m. alone was estimated to cost upward of $6,250,000. After passing the summit, and reaching the valley of a little stream called Rio Grande, the excavation, as a general rule, would be only the depth of the canal. Col. Childs found that the lake, at ordinary high water, is 102 feet 10 inches above the Pacific at high, and 111 feet 5 inches at low tide, instead of 128 feet, as calculated by Mr. Baily. He proposed to accomplish the descent to Brito by means of 14 locks, each of 8 feet lift. The harbor of Brito, as it is called, at the point where the Rio Grande enters the sea, is in fact only a small angular indentation of the land, partially protected by a low ledge of rocks, entirely inadequate for the terminus of a great work like the proposed canal, and incapable of answering the commonest requirements of a port. To remedy this deficiency, it was proposed to construct an artificial harbor of 34 acres area, by means of moles and jetties in the sea, and extensive excavations in the land. If, as supposed, the excavations here would be in sand, it would be obviously almost impossible to secure proper foundations for the immense sea walls and piers which the work would require. If in rock, as seems most likely, the cost and labor would almost surpass computation. Assuming the excavations to be in earth and sand, Col. Childs estimated the cost of these improvements at upward of $2,700,000. Returning now to the lake, and proceeding from 17 feet depth of water, opposite the mouth of the Rio Lajas, in the direction of the outlet of the lake at San Carlos, there is ample depth of water for vessels of all sizes for a distance of about 51·m., to a point half a mile south of the Boacas islands, where the water shoals rapidly to 14 feet; for the remaining 5½ m. to San Carlos, the depth averages only 9 feet at low, and 14 feet at high water. For this distance, therefore, an average under-water excavation of 8 feet in depth would be required, to carry out the plan of a canal 17 feet deep. But if the lake were kept at high level, the underwater excavation would have an average of only about 3 feet. Col. Childs proposed to protect this portion of the canal by rows of piles driven on each side, and supposed that when the excavation should be completed, there would be a sufficient current between them to keep the channel clear. We come now to the division between Lake Nicaragua and the Atlantic, through or along the Rio San Juan. Col. Childs carried a line of levels from the lake at San Carlos to the port of San Juan, and found the distance between those points to be 119½ m., and the total fall from the level of high water in the lake to that of high tide in the harbor, 107½ feet. From San Carlos to a point half a mile below the Serapiqui river, a distance of 91 m., Col. Childs proposed to make the river navigable by excavating its bed, and by constructing dams, to be passed by means of locks and short canals; the remaining 28 m. to be constructed through the alluvial delta of the San Juan, inland, and independently of the river. Of the whole fall, 62½ feet is on that portion of the river which he proposed to improve by dams, and on which there were to be 8 locks, and the remaining 45 feet on the inland portion of the works, by means of 6 locks—14 locks in all, each with an average lift of nearly 8 feet. It was proposed to place the first dam, descending the river, at the Castillo rapids, 37 m. from the lake, and to turn the falls thus created by the aid of a short lateral canal. By means of this dam the river was to be raised, at that point, 21½ feet, and the level of Lake Nicaragua 5 feet above its lowest stage; or, in other words, kept at high water mark, to avoid the extensive submarine excavations which would be necessary to enable vessels to enter the river. The fall at this dam would be 16 feet. The other dams were to be 4 of 8 feet fall, one of 18½ feet, and another of 14½ feet. Between all these it was found there would be required more or less excavation in the bed of the stream, often in rock. Col. Childs also proposed to improve the harbor of San Juan by means of moles, &c., and also to construct an artificial harbor or basin, in connection with it, of 13 acres area. As regards the amount of water passing through the San Juan, it was found that at its lowest level, June 4, 1851, the discharge from the lake was 11,930 cubic feet per second. The greatest rise in the lake is 5 feet. When it stood 3.43 feet above its lowest level, the flow of water in the river, at San Carlos, was 18,059 cubic feet per second, being an increase of upward of 50 per cent. Supposing the same ratio of increase, the discharge from the lake, at extreme high water, would be upward of 28,000 cubic feet per second. The river receives large accessions from its tributaries, which, at the point of divergence of the Colorado channel, swell the flow of water to as much as 54,880 cubic feet per second, of which 42,056 cubic feet passes through the Colorado channel, and 12,824 cubic feet into the harbor of San Juan. Since the irruption of the sea (1859) into the harbor of San Juan, it is reported that the amount of water entering it from the river has been reduced to less than one third its former volume. The cost of the work was estimated by Col. Childs as follows:

Eastern division (from port of San Juan to lake)	$18,023,275
Central division (through lake)................	1,068,410
Western division (from lake to Pacific).........	14,475,630
Total....................................	$28,567,315
Add for contingencies 15 per cent..............	4,285,095
Total estimated cost.......................	$32,852,410

The charter of the company, under the auspices of which the survey was made, stipulated that the canal should be of dimensions sufficient "to admit vessels of all sizes." A canal therefore, such as that proposed, but 17 feet deep and 118 feet wide at the surface of the water, could not meet the requirements of the charter, nor be adequate to the wants of commerce. To pass freely large merchantmen and vessels of war, a canal would require to be at least 30 feet deep, with locks and other works in proportion, which would involve at least three times the amount of excavation, &c., of the work proposed above, and a corresponding augmentation of cost, or a grand total of nearly $100,000,000. A canal so small as to render necessary the transshipment of merchandise and passengers is manifestly inferior to a railway, both as involving, in the first instance, greater cost of construction, and, in the second place, greater expense in working, with less speed.—It has been proposed to reach the Pacific from Lake Nicaragua by other lines than that surveyed by Col. Childs. The first of these, by way of the river Sapoa to the bay of Salinas, has however been found to involve a summit cut of 119 feet in rock, an up lockage from the lake of 350 feet, and a down lockage to the Pacific of 432. The summit level moreover would be without any adequate supply of water, and this and other difficulties have proved the line to be impracticable, if not impossible. Another line has also been suggested, from the extreme upper end of Lake Nicaragua, through the Estero de Panaloya into Lake Managua, and thence by canal to the port of Tamarinda or of Realejo, or behind the volcanic range of the Marabios, through the Estero Real into the bay of Fonseca. These lines from Lake Managua have never been properly surveyed, but none of them are believed, by those best acquainted with the country, to offer any insurmountable engineering difficulties. The principal objection to these is the great length to which they would prolong the line of transit, expressed in the subjoined table, as compared with that from the mouth of the Rio Lajas to the indentation of Brito:

Routes from the port of San Juan to the Pacific.	Length of the Rio San Juan.	Distance on Lake Nicaragua.	From Lake Nicaragua to Pacific.	Between Lakes Nicaragua and Managua.	Distance on Lake Managua.	Between Lake Managua and Pacific.	Actual Canalization.	Total len
To Brito............	119	57	18	..	..	..	137	194
" Tamarinda	119	120	..	4	50	16	139	309
" Realejo	119	120	..	4	50	45	168	338
" Estero Real......	119	120	..	4	50	20	143	313

It is assumed, throughout this table, that the river San Juan cannot be made navigable for ships, and that a lateral canal must be made for its entire length. The length of the river, including its windings, is nearly 120 m.; but it is probable that the distance in a right line between the lake and the Atlantic does not exceed 90 m.—The concession for constructing a canal through Nicaragua has been held by a great number of individuals and companies; but none have succeeded in carrying out the provisions of their contracts, which have consequently lapsed. The first was made to Messrs. Barclay and co. of London, Sept. 18, 1824; and was followed by others in the following order: to Aaron H. Palmer of New York, June 14, 1826; to the king of Holland, July 24, 1830; to Pedro Rouchaud of Paris, 1838; to George Holdship of New Orleans, 1839; to the king of Belgium, 1844; to Louis Napoleon Bonaparte (then a prisoner at Ham) in 1846; to William Wheelwright of London, Feb. 16, 1849 (not ratified by Nicaragua); to D. T. Brown of New York, March 14, 1849 (not ratified); to the American Atlantic and Pacific ship canal company, Aug. 27, 1849; and finally, May 1, 1858, to Felix Belly of Paris. No practical operations were undertaken by any of the concessionaries, except the Atlantic and Pacific ship canal company, which however were terminated with the survey conducted by Col. Childs. For the present, the entire project of a canal through Nicaragua seems to have been abandoned.

NICCOLINI, Giovanni Battista, an Italian poet, born in San Giuliano, near Pisa, Dec. 31, 1785. He studied at the university of Pisa, and in 1807 was made librarian and professor of history and mythology in the academy of fine arts in Florence. The grand duke Ferdinand III. afterward appointed him librarian of the palace, but he soon resigned that office to resume his functions at the academy. His first tragedy, *Polissena*, was written in 1810 for the prize offered by the Tuscan academy. He published in the following years *Ino e Temisto*, *Medea*, *Edipo*, *Matilda*, *Nabuco*, and *Antonio Foscarini*, which were received with great favor. His "Lessons on Mythology," written in his early life, were published in 1855. The publication of his "History of the House of Swabia" has been long delayed on account of illness, but is now (1860) said to be in progress. An edition of his works was published in Florence in 1847, but does not include two of his most celebrated plays, *Arnoldo da Brescia* and *Filippo Strozzi*.

NICE (Ital. *Nizza*), a former administrative division of Sardinia, situated between lat. 43° 37′ and 44° 19′ N., and bounded N. and E. by Piedmont, S. E. by the Mediterranean, and W. and S. W. by the French departments of Basses-Alpes and Var; area, 1,750 sq. m.; pop. in 1857, 256,603. It is subdivided into the 3 provinces of Nice (pop. 125,220), annexed to France in 1860, Oneglia, and San Remo. It entirely surrounds on the land side the little principality of Monaco. Geographically it belongs rather to France than to Italy, being separated from Piedmont by the Maritime Alps, branches of which extending toward the sea give great diversity to its surface. The principal river is the Var, which flows S. into the Mediterranean. The wild boar and antelope are found in the forests, and game is plentiful. The country, under proper cultivation, would be fertile. The vine, olive, and other fruits flourish on the sunny plains by the sea; grain, potatoes, and beans are grown; timber is abundant in some places; and the uplands afford good pasturage. Few cattle, however, are kept, the plough is little used, and the soil is not manured. Large quantities of honey are made, and there are some simple manufactures, such as coarse woollens and netting, soap, bronze and iron castings, and paper.—NICE, a seaport town and the capital of the preceding province, is built on a narrow plain between the Alps and the Mediterranean, and on both sides of the mouth of the river Paglione, 98 m. S.W. from Turin, in lat. 43° 42′ N., long. 7° 17′ E.; pop. 35,000. The port is small, but capable of admitting vessels drawing 15 feet of water, and is protected by two moles, one of which is surmounted by a battery and a lighthouse. The oldest part of the town lies on the E. side of the river, where the sailors' quarter is situated. It has narrow and dirty streets, but from its centre rises a hill 800 feet high, the summit of which, formerly occupied by a castle, is now laid out in public pleasure grounds, whence a magnificent prospect can be enjoyed. Parts of the old town have moreover been considerably improved of late years, and, as well as the more modern portion on the opposite side of the Paglione, present a gay and attractive appearance. The W. division is called the "quarter of the marble cross," from a monument commemorative of the reconciliation of Charles V. and Francis I. in 1538 through the intervention of Pope Paul III. It is inhabited chiefly by English, who have here a chapel and two cemeteries. The houses are neat and encompassed by gardens; and there are two public squares, one of which is surrounded by colonnades. The public buildings are not remarkable, the chief being a cathedral of the 17th century, a national college with a botanical garden attached to it, a public library, a zoological museum, a theatre, baths, hospitals, and convents. There are manufactories of silk, cotton, paper, oil, tobacco, perfumery, soap, and leather, and a considerable trade in those articles and in wine and fruit.—Nice is a free port, and there are steamers twice a week to and from Marseilles and Genoa. It is chiefly noted as a watering place and resort for English invalids, who frequent it in such numbers that they have produced a complete change in the aspect of that part of the town which they inhabit. As many as 5,000 or 6,000 British visitors are found here in the winter, beside a large number of Russians, Poles, French, and Germans. The climate is remarkably mild and salubrious, and the suburbs, which lie among the low hills a mile or two inland, are said to be particularly delightful. In the month of February there is at times a sharp west wind called the *bise*, but the temperature is regular; there are no sudden changes, and the atmosphere is clear and pure. The mean temperature of spring is 64°, of summer 74°, of autumn 55°, and of winter 50°. The extremes are 84° and [illegible]°. The language of Nice is a dialect of the Provençal called the Nizzard, which may be heard in its greatest purity in the neighboring rural districts. In the town French is generally spoken, and the vernacular is much corrupted.—Nice is built near the site of the ancient Ligurian town of Nicæa, founded by the Phocæans of Marseilles; and even after both became subject to the Romans it continued to be dependent for municipal purposes upon its parent city. It seems never to have been a place of much importance, being eclipsed by the neighboring town of Cemenelium, whose ruins may still be seen at Cimiez. In the 12th century Nice was the capital of an independent county, and in 1388 became a dependency of the house of Savoy. It was besieged by the Turks in 1543, and taken by Catinat in 1691, and by the duke of Berwick in the service of Louis XIV. in 1706. Having fallen into the hands of the French in 1792, it was incorporated with the department of the Maritime Alps, but was restored to Sardinia in 1814. By the treaty between Victor Emanuel and the emperor Napoleon III., March 24, 1860, Savoy and Nice were ceded to France, subject to the consent of the inhabitants to be given by ballot. The votes were taken in Nice on April 15, and resulted in a large majority in favor of annexation to France.

NICE, or NICÆA (now *Isnik*), an ancient city of Bithynia in Asia Minor, situated on the E. shore of Lake Ascania, 44 m. S. E. from Byzantium or Constantinople. It was colonized by Bottiæans, who called it Ancore, and having been destroyed by the Mysians was rebuilt after the death of Alexander the Great by Antigonus, who named it Antigonea. Lysimachus changed this appellation to Nicæa in honor of his wife. It became a place of great importance, and disputed with Nicomedia the title of metropolis of Bithynia. Under the Byzantine emperors it was long a bulwark against the Arabs and Seljooks, the latter of whom conquered it in 1078, 19 years after which it was taken from them by the soldiers of the first crusade, but it was restored at the next treaty of peace. In 1204, Constantinople having become the seat of a Latin empire, Theodore Lascaris founded an empire at Nicæa, comprehending Bithynia, Mysia, Ionia, and a part of Lydia. He was succeeded by John Ducas Vataces (1222–'54), Theodore II. (1254–'8), John Lascaris (1258–'9), and Michael Palæologus, who in 1261 transferred the seat of power to Constantinople. In 1330 the city surrendered to Orchan, and was incorporated with the recently founded Ottoman empire.—Nice is celebrated in ecclesiastical history as the seat of a general council of the Christian church, which was called together by the emperor Constantine in order to settle the Arian controversy. According to the Roman Catholics it was the second, and according to Protestants the first of the general councils. It met in May or June, 325, and closed in July of the same year. It was attended by 318 bishops, but it is not known who presided, as no complete record of the proceedings has been preserved. The principal authorities for the doings of the council are Athanasius, who accompanied his bishop in the capacity of archdeacon, and Eusebius, bishop of Cæsarea. Constantine himself was present, and took an active part in the transactions of the assembly. There seem to have been present at the council three parties: the adherents of Arius, who were very few in number; the Homoousians, his most direct opponents, who were also a minority of the eastern church; and a party which occupied a middle ground, and from which afterward sprang the Semi-Arians. It was the wish of these last that the controversy should be composed by the adoption of some general formula, which would still leave each party free to hold most of its own opinions. The Homoousians, however, insisted upon an unqualified condemnation of Arius, and a declaration of the belief of the church in an identity of essence between the Son and the Father. Their views finally prevailed, and the result was the adoption of the celebrated formula of faith which completely established the heterodoxy of the Arian views. This creed, however, is not the one which is now used in the Roman Catholic, Anglican, Episcopal, and Lutheran churches under the name of Nicene, though the latter embodies all its articles. The Nicene creed is an amplification of the one made at Nice, and was drawn up at Constantinople in 381. When the formula was adopted at Nice, 17 bishops at first refused to subscribe to the determination of the majority, but all of them afterward assented except two. Arius was banished into Illyricum, deposed from his office, and excommunicated. According to the Latin writers the council passed in all 20 canons, but the oriental Christians extend the number to 80. The controversy respecting the celebration of Easter was terminated, the Novatian dispute concerning the readmission of apostates to communion was composed, the Meletian schism was censured, and certain questions of ecclesiastical discipline were settled. The bishops were also about to impose celibacy on the clergy by an express law, but they were dissuaded from doing so by Paphnutius, who was himself living in that state.—The second council of Nice, which is recognized as œcumenical only by the Roman Catholics, is the 8th, or according to Protestants the 7th in order of time of the church councils, having been held in 787. It assembled under the authority of Pope Adrian I. by the desire of the empress Irene, and sat from Sept. 24 to Oct. 23. The bishops declared the veneration of images and the cross to be agreeable to Sacred Scripture and reason and to the teachings of the church, and penalties were denounced against all who should maintain the opposite doctrine.

NICENE CREED. See NICE.

NICÉRON, JEAN PIERRE, a French author, born in Paris in 1685, died in 1738. He was a member of the order of Barnabites and a relative of Jean François Nicéron, the writer on optics and friend of Descartes. After teaching Latin and rhetoric for some time in provincial colleges, he devoted himself to the preparation of his *Mémoires pour servir à l'histoire des hommes illustres de la république des lettres, avec un catalogue raisonné de leurs ouvrages* (43 vols. 12mo., Paris, 1727–'45), the last 4 volumes of which were published by Père Oudin, Michault, and the abbé Goujet. The work is valuable as a source of information, but has slight literary merit.

NICHOL, JOHN PRINGLE, a Scottish astronomer, born in Montrose about 1804, died in Rothesay, Sept. 19, 1859. He was the son of a bookseller, and at the age of 16 taught school at Dun, not far from Montrose. Subsequently he studied for the ministry, and was licensed to preach, but his taste for scientific pursuits led him to give up his profession. By Lord Melbourne's ministry he was appointed professor of practical astronomy in the university of Glasgow, which station he continued to hold until his death. He was very successful as a popular lecturer on his favorite science, in which capacity he spent some time in the United States. He wrote "The Architecture of the Heavens" (8vo., 1838); "Contemplations on the Solar System" (8vo., 1844); "Thoughts on some Important Points relating to the System of the World" (8vo., Edinburgh, 1846); "Exposition and History of the Planet Neptune" (8vo., 1848); "The Stellar Universe: Views of its Arrangements, Motions, and Evolutions" (12mo., 1848); "The Planetary System, its Order and Physical Structure" (8vo., London, 1851); "Cyclopædia of the Physical Sciences" (8vo., 1857). His writings are clear and frequently eloquent.

NICHOLAS. I. A W. co. of Va., intersected by the Gauley river, a branch of the Great Kanawha, and drained by Meadow river and Buffalo creek; area, 880 sq. m.; pop. in 1850, 8,963, of whom 73 were slaves. It has a mountainous surface and a soil not generally productive. The productions in 1850 were 83,273 bushels of Indian corn, 31,377 of oats, 6,209 of wheat, 2,001 tons of hay, 2,670 lbs. of tobacco, 13,649 of wool, and 41,976 of butter. There were 20 grist mills, 5 saw mills, 2 tanneries, 9 churches, and 189 pupils attending public schools. Value of real estate in 1856, $1,-841,294, being an increase since 1850 of 69 per cent. Capital, Summerville. II. A N. E. co. of Ky., intersected by Licking river and drained by its branches; area estimated at 300 sq. m.; pop. in 1850, 10,361, of whom 1,513 were slaves. It has a diversified surface, rugged in the N. and undulating in the S., the latter portion being very fertile. The productions in 1850 were 733,750 bushels of Indian corn, 69,834 of oats, 100,280 lbs. of tobacco, 32,263 of wool, and 161 tons of hemp. There were 19 grist mills, 7 saw mills, 3 tanneries, 13 churches, and 1,068 pupils attending public schools. The Blue Lick spring, celebrated for its mineral waters, is in this county on the banks of Licking river. The county will be traversed by the Maysville and Lexington railroad, now constructing. Capital, Carlisle.

NICHOLAS I. (NICOLAI PAVLOVITCH), emperor of Russia, born in St. Petersburg, July 7, 1796, died there, March 2, 1855. He was the 3d son of Paul I. by his second wife, a daughter of the duke Eugene of Würtemberg, and was educated under the direction of his mother, who was a virtuous, thoughtful, and domestic German woman. Among his tutors were Count Lambsdorf, Muravieff, Adelung, and the political economist Storch. With the exception of political economy, he showed comparatively little interest in scientific attainments, but was quick in mastering foreign languages. He grew up during the time of the wars of Napoleon, which tended to increase his natural taste for military life. The fondness for the pomp of parades, the minute attention to the external appearance of the soldiers, the passion for witnessing military exercises and manœuvering, which marked the rest of his life, became manifest in his early youth; and from the peace in 1815 to his accession in 1825 he devoted himself almost exclusively to military matters, without however giving evidence of any real strategetical capacity. During this part of his life he contracted a passion for drumming, and considered himself a virtuoso in this art, to the great annoyance of those around his person. Nicholas believed likewise that he had a great capacity for painting, especially battles, but never accomplished any thing respectable in that department. In 1816 he visited England and other foreign countries and the Russian provinces. On July 13, 1817, he married Charlotte of Prussia (Alexandra Feodorovna), the eldest daughter of Frederic William III.; she gave birth on April 17 (29 O. S.), 1818, to the present emperor Alexander II. About 1821 the family pact was secretly agreed upon, by which his elder brother Constantine renounced the succession in his favor. Nicholas, however, on the news of the death of the eldest brother, the emperor Alexander I. (Dec. 1, 1825), together with the whole nation, took the oath of allegiance to Constantine, and did not assume the reins of power until the latter, who then resided at Warsaw, had publicly signified his determination not to reign. The accession of Nicholas to the throne became the signal of a formidable insurrection, in the prompt suppression of which the new emperor showed great personal courage and presence of mind, but at the same time a cold-blooded and unrelenting disposition. Capital punishment, which had been abolished by the empress Elizabeth, was revived by Nicholas for the purpose of inflicting it upon the 5 principal leaders of the insurrection. Four were publicly executed, one after another, in St. Petersburg. The 5th and last in order was the poet Rileyeff. The rope broke, and he fell to the ground still alive. The sight of his agony created such a degree of sympathy in the assembled multitude, that the governor-general sent for instruction to the emperor. The command of Nicholas was: "Take a stronger rope and proceed with the execution." The other parties to the insurrection were banished to Siberia, some for life, and others for 20 years or for shorter periods; but the sentence of none of them was ever commuted. The insurgents declared that they were prompted to their attempt by the desolate condition to which the latter part of the reign of Alexander I. had reduced the empire, by the ferocious disposition of Constantine, and by the supposed incapacity of the new emperor. Nicholas, who was present during the examination of the prisoners, hidden behind a screen, thus received a wholesome lesson; and his first endeavor was to labor for the moral and social regeneration of the country. The brilliant though dearly purchased victories of Paskewitch and Diebitsch over Persia and Turkey in 1828–'9 contributed to add prestige to his government, especially as the Turkish war also saved the independence of struggling Greece, as well as that of the Danubian principalities, which were now reorganized under a Russian protectorate. The revolution of 1830–'31 in Poland, threatening at first to complicate the foreign relations of Russia, terminated in the annihilation of Polish nationality, and the absorption of that country in the empire of the czar. These events, accomplished in rapid succession, surrounded Nicholas with a halo of glory. His attempt to develop the native energies of the Russian nation, and to oppose the foreign influences which under Catharine II. and Alexander I. had hindered the progress of the national genius, constituted the origin of the so called Russian governmental Panslavism; and many strong and active intellects, attracted by the earnestness of his patriotic efforts, rallied at that time under his banner. He even for some time relaxed the rigor of the censorship, combated the venality of public men, and ordered the codification of the laws. But this reformatory zeal was of short duration. His want of discrimination in the selection of his ministers, the adulations of courtiers at home and of despotic sovereigns abroad, and the temptations of power, caused him to relapse into the most rigid absolutism; and Russia soon presented again the spectacle of a vast empire ruled by the iron hand of a single man, whose power rested upon a colossal military organization pervading all branches of the administration, and upon the blind agency of servile ministers. The erection of the citadel of Warsaw and numerous other fortifications served to keep down Poland. The United Greeks, a body who acknowledged the authority of the pope while preserving the usages of the Greek church, were compelled to join the orthodox establishment; the Protestants of the Baltic provinces were persecuted; and the Jews were subjected to the most barbarous treatment. His influence on the affairs of Europe from 1830 to 1840 was not very conspicuous, although he more and more menacingly observed the growth of liberal ideas. He indirectly supported Don Carlos in Spain, but considered Dom Miguel of Portugal as a usurper. To the last he opposed the introduction of constitutions in Greece and Prussia. After the crushing of Poland he drew closer his alliance with Austria and Prussia. With England he endeavored to remain on terms of good will, though not of close amity; but he was opposed to the July monarchy in France. During the political complications in connection with the conflict between the viceroy of Egypt Mehemet Ali and the sultan, Nicholas succeeded in securing his predominance in the East by a speedy intervention against the advance of Ibrahim Pasha in 1833, and in maintaining peace with the western powers in 1840. In 1844 he paid a visit to Queen Victoria, and subsequently he visited the emperor of Austria, and in 1846 Pope Gregory XVI. The attempted Polish rising of 1846 was suppressed with little bloodshed within the limits of the Russian parts of that country. He abstained from interfering during the political excitement which preceded and followed the French revolution of 1848, except in the Danubian principalities, until his assistance was invoked by Francis Joseph against the Hungarians, whose revolution was crushed by the aid of Russian troops, Görgey surrendering his army at discretion to the Russian general Rüdiger, acting under the command of Paskewitch, at Világos, Aug. 13, 1849. In the East Nicholas followed from the beginning of his reign the traditions of his house in his wars of conquest in Persia, the Caucasus, and Turkey. The war against the Circassians and other Caucasian tribes, who found an eastern Abd el Kader in Shamyl Bey, cost numberless troops and millions of money, but was at the same time an excellent military school for the empire. Nicholas's ambition of gaining preponderance in Turkey was constantly perceptible during his reign, and led in 1853, on occasion of the controversy about the guardianship of the holy places at Jerusalem and the protectorate over the Danubian principalities, to the rupture with England and France, which resulted in the Crimean war. In the spring of 1853 he had an interview with the emperor of Austria at Olmütz; but subsequently during the war the latter concluded a treaty with the allies (Dec. 2, 1854), occupied the Danubian principalities, and concentrated a large army in Galicia. Nicholas was left alone to fight the combined armies of France, England, Sardinia, and Turkey. The repeated defeats and losses of his formidable armies and fleets produced a deep effect upon his powerful constitution, and hastened his death, the more immediate cause of which was atrophy of the lungs. For some time previously he had been violently affected with influenza. He became worse by degrees from want of sleep and increased cough; but notwithstanding the remonstrances of his physicians (Dr. Mandt and Dr. Karell), he continued to attend to his usual occupations, and on Feb. 22 inspected some troops who were about to march into Lithuania. In the evening he was present at the prayers for the first week of Lent, but complained of being cold. From that evening he did not quit his little working room. On Feb. 23 he sent for his adjutant, Col. Tettenborn, and despatched him to Sebastopol. During the whole time he was ill, he lay on his camp bed, consisting of a casing of Russian leather filled with hay, a bolster of the same kind, with a blanket and his cloak over him. It was not till Feb. 28 that his state was looked on as decidedly serious. From that time he became rapidly worse; the physicians apprehended a paralysis of the lungs, and despaired of his recovery on the evening of March 1. He calmly received the report of the physicians in regard to his critical condition, and took the last sacraments early on the morning of March 2. He then took leave of the empress, their children and grandchildren, and blessed each one of them with a firm voice. He next sent for Counts Orloff and Adlerberg and Prince Dolgoruki, thanking them for their fidelity and bidding them farewell. Subsequently he took leave of the servants immediately about his person, on which occasion he is said to have been much affected. Last of all Madame Rohrbeck, the lady in waiting of the empress, was sent for, whom he begged never to quit her mistress. While his father confessor was speaking to him, he took the empress's hand and put it into the priest's. After this he lost his speech for a while, during which time he was engaged in prayer and crossed himself repeatedly. He subsequently regained his voice and spoke from time to time up to his decease, which took place without a struggle in the presence of the whole family at 10 minutes past noon. Among the last articulate words that the emperor spoke to his wife were: *Dites à Fritz* (the empress's brother, King Frederic William IV. of Prussia) *de rester toujours le même pour la Russie, et de ne pas oublier les paroles de papa.*—Nicholas was of a commanding presence, and the glance of his large, clear, cold, blue-greenish eyes pierced through and through. His capacity for labor and endurance was immense. He travelled day and night to inspect fortresses and review troops, and he worked at times 14 or 16 hours a day. His temperance and frugality were as remarkable as his industry; and an extra glass of wine at dinner excited him beyond measure. His habits were ostentatiously simple and dramatically soldierlike. He demanded that outward signs of awe should encounter him wherever he went, and to create a prestige was the constant object of his anxiety, whether he was walking the streets of his own capital or visiting foreign countries. The church, the army, and the secret police were the great engines of his government. He governed the holy synod by the medium of an aide-de-camp, whom he appointed as its president. In the latter part of his reign he suppressed liberal studies and systematically discouraged all liberal literature, while the universities of the empire, maintained with great ostentation, were devoted to educating men in sciences useful in war or in the administration of public affairs. He desired to abolish serfdom, but had neither the capacity nor the resolution necessary to carry out the measure. Although strenuously opposed to the liberty of the press in Russia, he is said to have daily perused the principal newspapers of England and the continent, and to have been very sensitive to their strictures upon his person or policy. Though kind to his attendants and lavish in his rewards for personal services, his disposition was cruel and tyrannical, and throughout his life he never learned to act up to the Russian proverb: "Be unyielding in punishing; be great in pardon." He was an excellent husband and father; and in his domestic virtues as well as in his religious fulfilment of his promises, he imitated the example of his mother. No Muscovite sovereign ever succeeded in inspiring his subjects with a more fanatical attachment to his person; and wherever the lofty stature and imperial port of Nicholas appeared, he was hailed as a demi-god rather than a man. His pride rose with his power, and at times he seemed possessed with hallucinations of almost superhuman greatness. —Beside his eldest son and successor, Alexander II., his children are: Maria (born 1819), widow of the duke of Leuchtenberg; Olga (1822), wife of the crown prince of Würtemberg; Constantine (1827), high admiral; Nicholas (1831), and Michael (1832). The widow of Nicholas died in St. Petersburg, Nov. 1, 1860.

NICHOLAS, Saint, bishop of Myra, born in Panthera in Lycia, died Dec. 6, 326. He is one of the most popular saints of Catholic Europe, being invoked as the patron of sailors, travellers, and captives, and the guardian of unmarried girls and of children. The young are universally taught to revere him, and the popular fiction which represents him as the bearer of presents to children on Christmas eve is well known. He is the Santa Claus of the Dutch. He takes rank in the Greek church immediately after the great fathers. Justinian dedicated a church to him in Constantinople about 560; he has been reverenced in the West since the 10th century, and became one of the favorite patron saints of Italy and northern Europe about the beginning of the 12th century. One of the most characteristic legends of him is that when a certain nobleman was about to prostitute his 3 daughters because he was too poor to give them marriage portions, St. Nicholas threw 3 purses in at his window by night, and thus enabled the daughters to be respectably married. His supposed patronage of children may be traced to the following story. During a scarcity of food he was once entertained by a man who used to steal children and serve up their limbs to be eaten by his guests. But when the dish was set before the saint he detected the fraud, and going to the tub where the remains of the children were salted down, he made over them the sign of the cross, and they rose up whole and well.

NICHOLS, Ichabod, D.D., an American clergyman, born in Portsmouth, N. H., July 5, 1784, died in Cambridge, Mass., Jan. 2, 1859. He was graduated at Harvard college in 1802, and commenced the study of theology with the Rev. Dr. Barnard of Salem, but returned to Cambridge in 1805 as tutor in mathematics, and remained in that office for 4 years. On Jan. 7, 1809, he was ordained as associate pastor with the Rev. Dr. Deane of the first Congregational church in Portland, Me.; in 1814 he became sole pastor by the death of his senior, and continued so till 1855, when he received a colleague. After this event, still retaining his pastorate, he removed to Cambridge, where he pursued his favorite studies and literary labors, with waning health, but with undiminished vigor of mind and tenacity of purpose, till within a few days of his death. He received the degree of D.D. from Bowdoin college in 1821, and from Harvard college in 1831. He was for many years one of the trustees of Bowdoin college, and in that capacity rendered large and efficient aid to its administration by his wise counsel and judicious influence. He was early elected a member, and was for several years the vice-president of the American academy of arts and sciences. Dr. Nichols retained through life his strong predilection for mathematical science, and was conversant with the successive stages of progress in that and the cognate departments of research. He was profoundly versed in metaphysics and ethics, and was a bold and independent thinker. In his theological views he was a Unitarian of the more conservative school. In 1830 he published a work on natural theology, which contains many views and illustrations peculiarly his own. He left a work nearly ready for the press, entitled "Hours with the Evangelists," which embraces an argument for the Christian revelation and miracles, directed mainly against the Straussian theory, and a series of critical and philosophical comments on the principal epochs in the life of Jesus. Of this work the first volume appeared in 1859 (8vo., Boston), and a second will be issued in the course of 1861. A volume entitled "Remembered Words from the Sermons of the Rev. I. Nichols" appeared in Boston in 1860.

NICHOLS, John, an English printer and author, born in London in 1745, died in 1826. At an early age he was apprenticed to the learned printer William Bowyer, became his partner on coming of age, and succeeded to the entire business on his death in 1777. His "Biographical and Literary Anecdotes of William Bowyer, Printer, F.S.A., and of many of his Learned Friends" (4to., 1782), was recast and extended to 9 vols. 8vo. under the title of "Literary Anecdotes of the Eighteenth Century" (1812–'15), and the series further continued by himself and his son, John Bowyer Nichols, under that of "Illustrations of Literary History" (8 vols. 8vo., 1817–'58). He also wrote or edited many works on English antiquities and local history, and was from 1778 till his death the editor and publisher of the "Gentleman's Magazine," in which he was succeeded by his son. There is a memoir of him, by Alexander Chalmers, in the last volume of the "Illustrations of Literary History."—**John Gough**, grandson of the preceding, born in London about 1807, is likewise noted for his acquaintance with antiquarian and topographical matters, and has been for many years connected as editor or publisher with the preparation of a great number of works, including several for the Camden society. In 1849 he published a translation of Erasmus's "Pilgrimage to St. Mary of Walsingham," and edited in 1852 the "Literary Remains of J. S. Hardy." He was for many years a manager of and chief contributor to the biographical department of the "Gentleman's Magazine." Since 1856 he has edited for that periodical the "Correspondence of Sylvanus Urban," which abounds in interesting antiquarian details and in literary anecdotes and gossip. This "Correspondence" still continues (1860), and was preceded in 1856 by Mr. Nichols's "Autobiography of Sylvanus Urban," which relates the early history and reminiscences of the magazine.

NICHOLSON, Alfred Osbern Pope, an American journalist and senator, born in Williamson co., Tenn., Aug. 31, 1808. In 1827 he was graduated at the university of North Carolina, at Chapel Hill, and commenced the study of medicine; but he abandoned that profession for the law, and obtained license to practise in 1831. In 1832 he became editor of the "Western Mercury," a democratic newspaper published at Columbia, Tenn., which he conducted for 3 years. He was elected to the legislature of Tennessee in 1833, 1835, and 1837; and in 1839 he was nominated for congress, but declined the nomination. He served as candidate for presidential elector in 1840, on the democratic ticket. In Dec. 1840, he was appointed by Gov. Polk a U. S. senator, to fill a vacancy occasioned by the death of Felix Grundy, and served for two sessions, one of which was the extra session of 1841. In 1843 he was elected to the state senate, and the next year took an active part in the presidential canvass in favor of Mr. Polk. In Dec. 1844, he removed from Columbia to Nashville, and took charge of the "Nashville Union." At the meeting of the legislature in Oct. 1845, he was nominated for U. S. senator, but defeated. In 1846 he retired from the editorship of the "Union," and was president of the bank of Tennessee from 1846 to 1848. He was a member of the southern convention which met at Nashville in 1850, and delivered in that body an elaborate speech in favor of the "compromise measures" then before congress. In 1851 he was appointed by the governor to the office of chancellor for the middle district of Tennessee, to fill a vacancy. This post he held until the meeting of the legislature in Oct. 1851, when he refused to be a candidate for election. He was a member of the democratic national convention of 1852, and a candidate for presidential elector for the state at large on the Pierce and King ticket. Upon the accession of Gen. Pierce to the presidency, Mr. Nicholson was offered an appointment in the cabinet, but declined the position, and was editor of the "Washington Union" during President Pierce's administration. In Oct. 1857, he was elected to the U. S. senate for a full term commencing March 4, 1859. Though Mr. Nicholson has from his youth been an active politician, he was a regular and successful practitioner at the bar for nearly 20 years.

NICHOLSON, James, an American naval officer, born in Maryland in 1737, died in New York, Sept. 2, 1804. His first appointment was in June, 1776, to the command of the Virginia of 28 guns; and in Jan. 1777, he succeeded Commodore Esek Hopkins as commander-in-chief of the navy, and held that position until its dissolution. A vigilant blockade of the Chesapeake prevented the Virginia from getting out of the bay, and Capt. Nicholson and his crew joined the army, and were present at the battle of Trenton. Subsequently in attempting to go to sea the Virginia struck upon the middle ground near the mouth of the Chesapeake, lost her rudder, and was captured by a very superior British force, Capt. Nicholson escaping with part of his crew. An inquiry instituted by congress acquitted him of all blame. He afterward commanded the Trumbull frigate of 78 guns, in which ship he was captured in Aug. 1781, off the Delaware, by the British frigate Iris, 32, and General Monk, 18. The Trumbull made a most gallant resistance, and did not surrender until she was completely dismantled and had sustained a heavy loss in killed and wounded. Com. Nicholson was not exchanged until near the close of the war, and did not serve afloat again.—SAMUEL, brother of the preceding, was also a commodore in the navy of the revolution, served in command of the Deane, 32, and was the first commander of the frigate Constitution. He was born in Maryland, and died in 1811 while senior officer of the navy.

NICIAS. I. An Athenian general, who flourished in the latter part of the 5th century B. C. He was several times associated with Pericles in military command, gaining a reputation for prudence and incorruptibility; and on the death of Pericles he was chosen by the aristocracy as their political leader in opposition to Cleon and the democrats. When Cleon proposed a decree punishing the inhabitants of Mitylene for rebellion, by putting to death the men and reducing the women and children to slavery, Nicias and his party opposed it with all their influence. He early gained a reputation for mildness, liberality, and piety; but his timidity, reserve, and superstition made him an object of ridicule to the comic poets of the day. He sacrificed every day, associated much with the prophets, and kept a soothsayer in his own house, in order that he might know the will of the gods in regard to his private affairs. In war he was distinguished rather for prudence than genius, but was almost always successful. He conquered the island of Minoa in 427 B. C., ravaged the island of Melos and the Locrian coast in 426, gained a victory over the Corinthians, (who were among the most prominent enemies of Athens in the Peloponnesian war) on their own territory in 425, and in conjunction with two colleagues captured the island of Cythera, belonging to Lacedæmon, in 424. But Nicias was naturally inclined to peace, and on the death of Cleon negotiations were entered into and a treaty was concluded with the Spartans, called the peace of Nicias. A defensive alliance between Athens and Sparta was soon after proposed, and confirmed on the part of the Spartans; but dissatisfaction having arisen because Argos had been induced by Alcibiades, who was now beginning to take part in public affairs, to send an embassy to Athens, it required all the energy of Nicias to preserve the existing treaties. Nicias and Alcibiades were now open rivals, and the demagogue Hyperbolus strove to procure the banishment of one or the other of them; but through their united efforts Hyperbolus himself was ostracized. In 416 the Athenians, in spite of the opposition of Nicias, resolved to send an expedition into Sicily. Nicias, Alcibiades, and Lamachus were appointed to the command; but Alcibiades was soon afterward recalled, Lamachus was slain before Syracuse, and Nicias was left to conduct operations alone. At first he was successful. Syracuse was in hourly danger of falling into his hands, when the Spartan commander Gylippus arrived with succor for the besieged. Nicias sent home for reënforcements and permission to resign. The reënforcements were despatched under Demosthenes and Eurymedon, but the second request was refused, and Nicias continued the war, but with constantly failing fortunes. Yielding to the representations of his colleagues, he was about to retreat when an eclipse of the moon occurred, and was interpreted to the superstitious commander as an injunction from the gods to remain until the next full moon. The delay proved fatal. The Syracusans forced the Athenians to a general naval engagement, destroyed their fleet, and when they attempted to escape by land pursued and captured them. Nicias and Demosthenes were put to death, and the Athenians refused to inscribe the name of the former upon the monument which they raised to the memory of those who fell in Sicily. II. An Athenian painter, who flourished about 320 B. C. He was famous in particular as a painter of female figures in encaustic. He assisted Praxiteles in coloring his statues. He was the first painter who used burnt ochre, or enamelled his pictures with fire, the exact method of which is not now understood.

NICK, OLD, a popular name of the devil. Though Butler in "Hudibras" derives the term from the name of Nicolo Macchiavelli, there is no doubt of its being in use before his time, and of its coming very early into England from the north. The Icelandic *neck* or water spirit is called Nikur, one of the Eddaic names of Odin; and a belief in similar beings is common to all the Scandinavian races. Burns alludes to this name under the form of "Nickie-ben" in his "Address to the De'il."

NICKEL, a brilliant, ductile, and malleable metal, discovered in 1751 by Cronstedt. It is represented by the symbol Ni; its equivalent, as determined by Schneider in 1859,* is 29, and its specific gravity when forged 8.82. It is more fusible than iron, and like that is rendered still more so by combination with carbon. It is also magnetic at temperatures below 680°. Needles for the compass made of it have this advantage over those of steel, that they are not liable to rust. Its tenacity is greater than that of iron. The useful qualities possessed by this metal would seem to adapt it for many important purposes in the arts if it were more generally known, and could be obtained in large quantities. Nickel and cobalt are commonly associated together, and also with iron, both in their ores and in meteoric iron. The three metals present several remarkable points of resemblance, and suggest a relationship that is as yet very imperfectly understood. The sources of supply of nickel are the substance called speiss, an arseniuret of nickel obtained in the manufacture of smalt (see COBALT), and the native arseniuret of nickel called *Kupfernickel* (copper nickel) by the German miners, which when pure contains 56 per cent. of arsenic and 44 per cent. of nickel. One or more other metals, as iron, lead, cobalt, copper, and antimony, together with sulphur, are commonly present in small quantities. Mines producing nickel are worked in Saxony, Thuringia, Hesse, Styria, Dauphiné, and Sweden. In the United States its ores have been found in Chatham, Conn., and are worked in Lancaster co., Penn., where from the reports of the mine it is found in almost inexhaustible quantities associated with copper, and also occurring in the form of sulphuret of nickel. It is this locality which furnishes the nickel for the new American cent, of which 12 parts in 100 are nickel and 88 parts are copper. In Bavaria it has also been applied to coinage. In the mineral cobalt pyrites, the composition of which is expressed by the formula $CoS+Co_2S_3$, the cobalt is sometimes replaced in part by nickel or by copper; and the variety of this species called siegenite, the composition of which may be represented by the formula $(Ni,Co,Fe)S+(Ni,Co,Fe)_2S_3$, sometimes contains from 33 to more than 42 per cent. of nickel. This variety occurs at Mine la Motte, Missouri, and has been met with in Carroll co., Md. Prof. Wurtz of Washington reported to the American association for the advancement of science in 1858 his discovery of ores of a similar character in the gold region of North Carolina; in Gaston and Lincoln cos. they are especially abundant, along the western slope of Cross mountain, where the fragments present the appearance of a black earthy wad or gossan, and cover the surface of the ground. (See "American Journal of Science," Jan. 1859.)—Nickel is chiefly valued as an ingredient of the alloy German silver, the best of which is composed of nickel 3 parts, zinc 3½, and copper 8. An alloy made by the Chinese and sometimes called *tutenag* contains, with the quantities of nickel and copper just given, 6½ parts of zinc. The genuine *tutenag* is however now regarded as zinc. The *pakfong* of the East Indies is also a nickeliferous alloy. In commerce the metal is generally received in the form of grains or granulations. Various methods of obtaining the metal free from its associates are practised with the speiss and with the minerals. These, purely chemical in their nature, are described in the works on chemistry and metallurgy.—Nickel combines with oxygen to form a protoxide and a peroxide. The former is a powerful base, and its salts assume green colors complementary to those of the corresponding salts of cobalt.

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* The same authority makes that of cobalt 30; so that the equivalents of the two metals, and that of iron 28, form a regularly ascending scale, beginning with the last. That of manganese, as determined by Von Hauer, is 27.5.

NICOBAR ISLANDS, a cluster of islands in the bay of Bengal, lying S. of the Andamans, between lat. 6° 45′ and 9° 15′ N., and long. 92° 45′ and 94° E.; pop. about 8,000. They consist of 9 considerable islands and several smaller ones. The names of the principal are: Great and Little Nicobar, Katchall, Noncowry, Camorta, Trinkut, Terressa, Bompocka, Tillanchong, Chowry, Batti-Malve, and Car-Nicobar. Great Nicobar is about 30 m. long and 12 m. broad, and Little Nicobar or Sambelong 14 m. long and 12 m. broad; they are the largest islands of the group, and are separated by a channel 6 m. wide. The surface of all the islands is generally hilly and well wooded. The soil is fertile, and capable of producing all the fruits and vegetables of tropical regions. Ambergris and edible birds' nests abound, and are the chief articles of exportation. The inhabitants, who resemble the Malays, are a lazy, cowardly, and perfidious race, and have frequently murdered the crews of ships which have touched on their coasts. The Danes have attempted to form settlements in one of the Nicobars, but were compelled to withdraw by the insalubrity of the climate, and in 1848 abandoned their claim to sovereignty over them. The British flag was then hoisted by the native chiefs of Car-Nicobar, but the East Indian government refused in any manner to recognize their proceedings.

NICODEMUS, a Pharisee and member of the sanhedrim, who, impressed by the miracles performed by Jesus, came to him by night, and held with him the discourse related in the third chapter of John. Subsequently he defended Jesus at a meeting of the sanhedrim, on the ground that no man could be judged until heard in his own defence (John vii. 50), and also assisted Joseph of Arimathæa in laying out the dead body of the Saviour. Tradition states that afterward Nicodemus became openly a Christian, was baptized by Peter, and in consequence was deprived of his office and driven from Jerusalem; and that he took refuge until his death in the country house of his cousin Gamaliel. An apocryphal gospel is attributed to him.

NICOLA DI PISA. See PISANO.

NICOLAI, CHRISTOPH FRIEDRICH, a German author and publisher, born in Berlin, March 18, 1733, died Jan. 8, 1811. His father was a bookseller, and at the age of 16 he was sent to Frankfort-on-the-Oder to learn the same occupation. During his apprenticeship he devoted his leisure to study. He returned to Berlin in 1752, and in 1755 published a volume of "Letters" discussing the merits of the two literary sects then agitating Germany. This work gained him the intimacy of Lessing and Moses Mendelssohn, with whom he commenced in 1757 the *Bibliothek der schönen Wissenschaften*, one of the first literary periodicals in the German language. It was continued till 1805, under the name of the *Neue Bibliothek*. In conjunction with Lessing he established in 1759 the *Briefe, die neueste Deutsche Literatur betreffend*, which exerted a powerful and wholesome influence on the development of German literature; and in 1765 he projected the *Allgemeine Deutsche Bibliothek*, which he edited until it reached its 107th volume. In the latter part of his life Nicolai was, in consequence of illness and depression of spirits, subjected to a singular series of spectral illusions. He was for a considerable period haunted by phantoms which filled the apartment in which he was, presenting crowds of persons who moved and acted before him, and even spoke to him. After some time, and by the use of medicine, these apparitions were at length dispelled. Nicolai had observed them calmly and carefully, and reported to the philosophical society of Berlin a full account of the matter. His principal works are: *Charakteristische Anekdoten von Friedrich II.* (6 vols., Berlin, 1788–'92); *Leben und Meinungen des Magisters Sebaldus Nothanker* (4th ed., Berlin, 1799); and *Beschreibung einer Reise durch Deutschland und die Schweitz* (3d ed., 12 vols., Berlin, 1788–'96). *Nicolai's Leben und sonderbare Meinungen*, by Fichte, was edited by A. W. von Schlegel (Tübingen, 1801); and his biography and literary remains, by Göcking, were published at Berlin in 1820.

NICOLAITANS, a heretical sect, alluded to in Rev. ii. 6, 15, and supposed to have received their name from Nicolas of Antioch, one of the 7 deacons who is said to have fallen into practices opposed to the gospel and to the instructions of the apostles. According to Irenæus, who is the first Christian writer that mentions them, they held fornication and the eating of meats which had been offered to idols to be not sinful. St. Epiphanius relates that Nicolas had a beautiful wife whom he abandoned for a life of celibacy, but afterward, unable to keep his resolution, returned to her, and justified his conduct by licentious principles, which became the basis of the Nicolaitan sect. Eusebius says that they soon became extinct, but according to Tertullian they continued to exist under another name, and their heresies passed into the sect of the Cainites. It is suggested by Mosheim that the church fathers confounded them with the Gnostics, and by Neander that the name is employed in the Apocalypse in a purely symbolical sense, and signifies seducers of the people.

NICOLAS, Sir Nicholas Harris, an English antiquary and historian, born at East Looe, in Cornwall, March 10, 1799, died near Boulogne, Aug. 3, 1848. He entered the navy as midshipman in 1808, and was promoted to the rank of lieutenant in 1815. On the conclusion of the war he left the service, and, applying himself to the study of law, was called to the bar in 1825; but the greater part of his time was devoted to antiquarian and historical literature. He was chosen a member of the council of the society of antiquaries, but his imprudence and fiery temper caused him to be expelled after he had appeared once at their meeting; and he thereupon began a series of attacks on the society, which for a time occupied a very prominent place in periodical and pamphlet literature. In 1826 he became joint editor of the "Retrospective Review." He was an indefatigable and judicious investigator, and nearly all his works possess great historical value. The most important of them are: "Life of Secretary Davison" (1823); *Notitia Historica* (1824), which was remodelled, under the title of "Chronology of History" (1835), for Lardner's "Cabinet Cyclopædia;" "Synopsis of the Peerage of England" (1825); *Testamenta Vetusta* (1826); "History of the Battle of Agincourt" (1827); "Controversy between Sir Richard Scrope and Sir Robert Grosvenor" (3 vols., 1832, unfinished); "History of the Orders of Knighthood of the British Empire" (4 vols. 4to., 1841–'2); "Observations on the Institution of the Order of the Garter," in vol. xxxi. of *Archæologia;* and "History of the Royal Navy" (2 vols. 8vo., 1847, unfinished). He prepared for Pickering's Aldine edition of the British poets the lives of Chaucer, Surrey, Wyatt, Collins, Cowper, Thomson, Burns, and Henry Kirke White, and edited the poems of Davison, the "Literary Remains of Lady Jane Grey," the "Siege of Carlaverock," the "Privy Purse Expenses of Henry VIII.," a "Chronicle of London from 1089 to 1483," "Memoirs of Lady Fanshawe, written by Herself," &c. His publication of the "Letters and Despatches of Admiral Lord Viscount Nelson" (7 vols. 8vo., 1844–'6) threw light upon points of Nelson's career which had been previously greatly misunderstood. At the time of his death he was engaged in editing the papers of Sir Hudson Lowe. He was created knight of the Hanoverian Guelphic order in 1831, chancellor of the Ionian order of St. Michael and St. George in 1832, and grand cross of the same order in 1840.

NICOLE, Pierre, a French moralist and theologian, born in Chartres in 1625, died in 1695. He was graduated at the university of Paris in 1644, and for several years held a professorship in the Port Royal community, to which he was introduced by two of his sisters, who were members of the sisterhood. He was one of the authors of their school books, and assisted in their controversy with the Jesuits. According to the abbé Goujet, he had a share, either by advice or correction, in several of Pascal's "Provincial Letters," of which he made an elegant Latin translation under the assumed name of William Mendrock (Cologne, 1656). He was the principal author of the great work *Perpétuité de la foi de l'église Catholique touchant l'eucharistie*, published under the name of Arnauld. He shared in the persecutions which befell the Port Royalists; being obliged to leave Paris in 1677, he concealed himself in the neighborhood of Chartres and Beauvais, and in 1679 went to Brussels and thence to Liége. By the intervention of M. de Harlay, archbishop of Paris, he was at last allowed to return to France, where he again became involved in religious controversies, siding with his old adversaries the Jesuits against the Calvinists, with Bossuet against Fénélon, and with Mabillon against the abbé de Rancé. His fame rests upon his *Essais de morale et instructions théologiques*, the publication of which, commencing in 1671, continued for several years, and extended to 25 vols. 12mo. Nicole's life was written by Goujet (12mo., 1782), and an admirable sketch of him may be found in Ste. Beuve's *Port-Royal*. Cerveau published the *Esprit de Nicole* (12mo., Paris, 1765), and Mersan collected his *Pensées* (18mo., Paris, 1816).

NICOLET, a central co. of Canada East, on the right bank of the river St. Lawrence, and drained by the Nicolet and Becancour rivers; area, 487 sq. m.; pop. in 1851, 19,657. The capital, Nicolet, 81 m. N. N. E. from Montreal, has a Roman Catholic college with about 180 pupils.

NICOLL, **Robert**, a Scottish poet, born in Tullybeltane, Perthshire, Jan. 7, 1814, died near Edinburgh, Dec. 9, 1837. He received no education beyond reading and writing, and his earliest occupation was that of a herd boy. Afterward he was apprenticed to a grocer in Perth, and when he had served his time there opened a circulating library in Dundee. In 1835 he published a small volume of poems, which passed through 3 editions. In 1836 he undertook the editorship of the "Leeds Times," a liberal political journal, which he conducted with energy and success until near his death.

NICOLLET a S. E. co. of Minnesota, bounded E. by the Minnesota river, which also intersects it from the S. E. to the N. W.; area estimated at 650 sq. m.; pop. in 1860, 3,774. Its surface is level, and contains several lakes, of which Swan lake is the largest. Capital, St. Peter.

NICOLLET, J. N., a French astronomer and geological explorer, born in Savoy about 1795, died in Washington, D. C., Sept. 11, 1843. He was early distinguished for his attainments in astronomy and geography, and was known as the pupil and friend of Laplace, who makes frequent mention of him in his *Mécanique céleste*. He came to the United States about 1833, for the purpose of making a scientific tour, and extending the knowledge of the physical geography of North America. After exploring the southern states, he was attracted to the great basin embraced by the sources of the Red, Arkansas, and Missouri rivers, the scientific exploration of which he entered upon forthwith. In 1836 he had extended his observations even to the sources of the Mississippi. By astronomical and barometrical observations he determined the geographical position and elevation of many important points. He collected many interesting details respecting the history and dialects of the Indian nations, and of the productions and natural history of the country. Returning to the east, he was engaged by the war department, and instructed by Mr. Poinsett to revisit the far West and prepare a general report and map for the government. Fremont accompanied him as his assistant. In 1841 Nicollet presented to the association of American geologists at Philadelphia an interesting communication upon the geology of the upper Mississippi region and of the cretaceous formation of the upper Missouri. In 1843, at the meeting of the association at Albany, he presented further particulars respecting the cretaceous formation, and exhibited the beautiful map of the country which he had completed for the government, and which was published by order of congress. The completion of his report was arrested by his last illness, brought on by years of exposure.

NICOMEDES I., king of Bithynia, died about 250 B. C. He succeeded his father Zipœtes in 278 B. C., and one of his first acts was to assassinate two of his younger brothers. Another brother, Zipœtes, who rebelled and took possession of the maritime districts of Bithynia, he defeated with the assistance of the Gauls, and also put to death. The remainder of his reign was devoted to useful and peaceful enterprises. He was the first ruler of the Thracian dynasty who took the title of king. He fixed his residence near the ruined Greek city of Astacus, where he built a new capital and called it Nicomedia.—**Nicomedes** II., surnamed **Epiphanes**, king of Bithynia from 149 to 91 B. C., and 4th in descent from the preceding. He was educated at Rome, where he found such favor with the senate that his father Prusias II., dreading his ambition, sent orders to have him assassinated. Nicomedes, discovering the plot, entered Bithynia in arms, and being supported by the inhabitants dethroned his father and put him to death. He made an alliance first with the Romans, whom he assisted in their war with Aristonicus (131), and afterward with Mithridates, and having seized Paphlagonia, placed it under the government of one of his sons. Foiled by Mithridates in an attempt upon the Cappadocian throne, to secure which he had married Laodice, the widow of Ariarathes VI., he was soon afterward deprived of Paphlagonia also by the Romans, and is said to have died of disappointment.—**Nicomedes** III., surnamed **Philopator**, son and successor of the preceding, and the last king of Bithynia, died in 75 or the early part of 74 B. C. On the death of his father, Mithridates incited another son, Socrates, to claim the crown, and Nicomedes was driven from the kingdom. Restored by the Romans the next year, he was persuaded by his allies to make war upon Mithridates, who deposed him a second time (88) and it was not until the conclusion of the first Mithridatic war (84), which broke out in consequence of this action, that he was restored to his throne. On his death, having no children, he bequeathed his kingdom to the Romans.

NICOMEDIA, the capital of ancient Bithynia, situated on the Astacenian gulf, at the E. extremity of the Propontis. It was built in 264 B. C. by Nicomedes I., and for 6 centuries prospered, being often, under the Roman empire, the residence of the emperors while engaged in their eastern wars. It was adorned with many magnificent buildings, the ruins of which still exist, but is especially celebrated as having been the place where the historian Arrian was born, where Hannibal died, and Diocletian abdicated. The modern name is Ismeed, and the place is still of some little importance.

NICOPOLI, or Nicopolis, a city of European Turkey, in Bulgaria, on the right bank of the Danube, 80 m. S. W. from Bucharest, and 280 m. N. W. from Constantinople; pop. about 10,000. It consists of two parts: the fortified or Turkish town, which is perched on a line of limestone cliffs, overhanging the Danube; and an open quarter on the declivity of an adjoining height, inhabited by Bulgarians, Wallachians, and Jews. It was founded by Trajan about A. D. 106, and gives title to a Greek archbishop and a Catholic bishop. The sultan Bajazet I. defeated King Sigismund of Hungary under the walls of this city in 1396.

NICOPOLIS, a city of ancient Greece, in Epirus, on the Ambracian gulf, built by Augustus, in 31 B. C., to commemorate his victory over Antony at Actium. It was peopled from the Epirotic towns, invested with the privileges of a Roman colony, and raised to the dignity of an amphictyonic city. The conqueror erected a temple to Neptune and Mars, and instituted a quinquennial festival styled *Actia.* Under his successors this city became the capital of Epirus, but in the middle ages it sank into obscurity and disappeared.

NICOSIA, Leucosia, or Lefkosia, a town of Asiatic Turkey, capital of the island of Cyprus, situated in the N. part of the island, 9 m. from the sea; pop. about 18,000, two thirds of whom are Turks. It is about 3 miles in circuit, and surrounded by strong walls with 3 gates, but its fortifications are all commanded by neighboring heights. With the exception of the Greek quarter, the town is generally ill built with narrow unpaved streets and hut-like houses. There are some imposing buildings however, among which are the mosque of St. Sophia, formerly a Christian church, the church of St. Catharine, the Armenian church, the church of St. Nicholas, now used as a grain depot, the seraglio, or governor's palace, erected as a royal residence while the island was held by the Christians, and the palace of the Greek archbishop. There are manufactures of Turkey leather, carpets, and silk, and British calicoes are printed for exportation. The Cyprus wines are produced on the neighboring hills.—Nicosia in the time of Constantine the Great was 9 m. in circuit, and before Cyprus came into the possession of Venice had 300 churches. It was taken from the Venetians by the Turks in 1570, when 20,000 of its inhabitants perished.

NICOT, Jean, a French diplomatist, born in 1530, died in Paris in 1600. Being sent by Francis II. as ambassador to the court of Portugal, he there procured some seeds of a tobacco plant from a Flemish merchant, who had obtained them from Florida. These he brought into France, and in honor of him the botanical name *Nicotiana* was given to tobacco.

NICOTIA, or Nicotine, a volatile alkaloid, the active principle in tobacco, obtained by distillation of the infusion of the plant, an acid being placed in the receiver to fix the alkaloid. By the use of a stronger alkali it is afterward liberated and obtained in the form of a clear oily fluid of specific gravity 1.048. It possesses an exceedingly acrid burning taste, even when largely diluted, and an odor like that of tobacco, which becomes very strong when ammonia is present. Its vapor is exceedingly powerful and irritant to the nostrils, that arising from a single drop being sufficient to render the whole atmosphere of a room insupportable. Nicotia decomposes at 482°, and also by exposure to the air. It has a strong alkaline reaction, and forms crystallizable salts with the acids. It is one of the most virulent poisons known, a drop of the concentrated solution being sufficient to kill a dog, and its vapor destroying birds. Tannin combines with it to form a compound of little solubility, and it may therefore serve as an antidote to the poison. Nicotia protects the animal tissues from decomposition; and Orfila has found it several months after death in bodies of animals destroyed by it. A translation of an interesting memoir upon its properties by Orfila may be found in the "New York Journal of Medicine," N. S., vol. ix. pp. 112, 219, and 369. The proportion of the alkaloid obtained by this chemist from Havana tobacco was 2 per cent., from that of Maryland 2.2, and from that of Virginia 6.9.

NICOYA, Gulf of, a bay of Costa Rica on the Pacific ocean. The opening from the sea, between Cape Blanco on the W. and Point Herradura on the E., is 30 m. wide; and the gulf extends northward about 56 m., forming on the W. a small peninsula of the same name. It contains numerous islands, of which the principal are St. Lucar, Chira, Alcatraz, Venado, and Bejuco. Costa Rica has 3 ports on this bay, viz., Herradura, Caldera, and Punta Arenas, of which the last named is the only one now in use. The W. shore of the gulf is almost uninhabited, and both shores are low and insalubrious. A number of considerable streams fall into this gulf, of which the Tempisque and Rio Grande are the principal.

NIEBUHR, Barthold Georg, a German historian, son of Karsten Niebuhr, born in Copenhagen, Aug. 27, 1776, died in Bonn, Jan. 2, 1831. He was two years old when his father removed to Meldorf in Holstein, where he passed his boyhood till 1792, living in retirement, adopting studious habits, and having few playmates or amusements. He learned in the nursery both the German and Danish languages; was instructed by his father in geography, history, and the English and Latin languages; derived advantage from the conversation and library of Boie, *landvogt* of the district; was remarkable for his capacity and proficiency, and on entering the gymnasium of Meldorf in 1789 was advanced at once to the first class. He was private pupil of the head master, Dr. Jäger, was for 3 months in a commercial institute at Hamburg in 1792, and in 1794 was sent to the university of Kiel, where he remained two years, and became intimately acquainted with Mme. Hensler, whose sister Amalia Behrens was his first wife, with the counts Stolberg, and with Voss, Jacobi, and Schlosser. In 1796 he became private secretary to Schimmelmann, the Danish minister of finance, was soon after appointed secretary to the royal library by Count Bernstorff, and in 1798 sailed to England, and resided chiefly in London and Edinburgh for more than a year. Having received two small appointments from the government at Copenhagen, he married, and resided in that capital till 1806, directing his studies chiefly toward classical antiquity, and establishing his reputation both as a scholar and an administrative officer. In 1806 he removed to Berlin, having received from the Prussian government an appointment as joint director of the bank, but was soon obliged to flee with the other officials after the battle of Jena. He passed through Dantzic, Königsberg, and Memel, was intrusted by Hardenberg with the financial department of the commissariat, and accompanied the army till the battle of Friedland. After the dismissal of Hardenberg (1807) he was appointed on the commission to conduct the government provisionally, and suggested fiscal reforms which were accepted by Stein after the formation of a new administration. He resided one year in Amsterdam, making unsuccessful efforts to negotiate a loan, and on his return to Berlin in 1809 was nominated privy councillor, and was made the head of the department for the management of the national debt and the supervision of the banks. The opposition made by the ministry to his financial plans caused him to demand his dismissal, and both Hardenberg and Stein attributed his conduct to an undue waywardness and impatience of disposition. His own letters prove that while the important offices to which he had been raised had given him an extravagant estimate of his financial abilities, he was nevertheless chiefly desirous to return to the literary studies from which he had been withheld by public duties. Appointed historiographer to the king, he delivered lectures on ancient Roman history in the university of Berlin in 1810 and 1811, which were immediately published, and contained the germs of his later doctrines. He was also associated with Spalding, Buttmann, Ancillon, Schleiermacher, Savigny, and a few others, in a philological society. His studies and lectures were interrupted by the events of the war of liberation in 1813–'14, by writing several political tracts, and by the subsequent illness and death of his wife; and in 1816 he sought change of scene, and went as Prussian ambassador to the court of Rome. On his way he discovered at Verona the palimpsest MS. of the "Institutes" of Gaius. In Rome he was chiefly occupied with studies concerning its ancient history, but was at first disappointed by the degeneracy of the people and the meagreness of its monuments, and was harassed by the limitations in the use of the public libraries. He did not receive his final instructions as ambassador till he had been at his post 4 years, and the negotiations with the papal court were completed by Hardenberg in person in 1821. But the services of Niebuhr in the entire arrangement of the preliminaries were acknowledged by the court, and he was rewarded by the king of Prussia with the order of the red eagle, and by the emperor of Austria with the Leopold order of knighthood. In 1821 Bunsen became secretary of the legation, and Niebuhr was engaged in planning the work on Roman topography, which he subsequently aided Bunsen, Platner, and others in preparing. In 1822 he asked for and obtained a temporary release from his duties, which was afterward made final, and resided chiefly in Berlin and Bonn till in 1824 he became adjunct professor of ancient history in the university recently established in the latter city. In 1824 he lectured on the history of Greece after the battle of Chæronea, on Roman antiquities in 1825, on ancient history in general in 1826, on ancient geography and ethnology in 1827, on imperial Rome in 1828 and 1829, and on Roman history in 1830. He instituted in 1827 the *Rheinisches Museum*, consisting of short philological essays by eminent scholars; superintended the republication of the *Corpus Scriptorum Historiæ Byzantinæ*, to which he furnished an edition of Agathias; and was especially occupied with revising and correcting his great work on the history of Rome, the first volume of the new edition of which appeared in 1827. "I do not hesitate to say," he wrote, "that the discovery of no ancient historian could have taught the world so much as my work; and that all that may hereafter come to light from ancient and uncorrupted sources will only tend to confirm or develop the principles I have advanced." The work attracted general attention, and gave a new impulse to the investigation of classical antiquity. In the winter of 1829–'30 his house was burned, and with it nearly all the MSS. of his second volume, which, however, he was able to prepare again for the press within a year. During his residence at Bonn he was systematically and happily occupied, and, though interested in public events, devoted himself exclusively to what he regarded as the great labor of his life. The French revolution of July, 1830, caused him the deepest anxiety, and he foreboded the worst consequences from the revival of popular sovereignty. A cold which he caught on one of his frequent visits to the news rooms resulted in inflammation of the lungs, which terminated fatally after a week's illness. Niebuhr was personally remarkable for amiability, earnestness, and integrity, combined with a wayward, impatient, and impracticable temper. He cherished the habits of a retired and unassuming scholar after having received distinguished honors for public services, and while recognized as the first philologian of Europe. He had married a second time before his visit to Rome, where his son Marcus was born, whom he educated with peculiar care, and with the determination to make him "believe in the letter of the Old and New Testaments." "I shall nurture in him," he said, "from his infancy a firm faith in all I have lost or feel uncertain about." This son attained to high office in the Prussian civil service, was an enemy of liberal ideas, and died Sept. 1, 1860.—The principal monument of the genius of Niebuhr is his *Römische Geschichte* (2d. ed. 1827-'42; translated into English by J. C. Hare and Connop Thirlwall), which has been called the most original historical work of the present age. It was a reconstruction of Roman history, a development of historical materials from the early myths and legends. Its aim to reproduce the fabric of history from scattered fragments, to extract truth and certainty out of traditional narratives, together with the erudition, sagacity, and power of imagination which it displayed, excited the enthusiasm of intelligent readers. He sometimes gave the name of divination to the combinations by which he reached the basis of historical truth. In England his theories were generally accepted by scholars, and Dr. Arnold professed never to venture to differ from him except when he manifestly had evidence that had not occurred to him. Macaulay also favored his theory of the presumed derivation of early Roman history from national ballads, which has since been generally abandoned in Germany, and which Sir G. Cornewall Lewis has proved to rest on insufficient positive evidence. Another view which he brought into prominence was that the patricians and plebeians were respectively a conquering and a conquered race, with different languages, feelings, and habits, yet gradually coalescing into a single body politic. Three series of his lectures have been published since his death in both German and English, respectively on Roman history, on ancient ethnography and geography, and on ancient history. They were edited by his son Marcus and Dr. Ischer, and have been translated by Dr. L. Schmitz (8 vols. 8vo.). His opinion that the mediæval municipal institutions of Italy were derived from the Romans, and not from the northern invaders, has been generally rejected. It is remarkable that he did nothing to elucidate the monetary system of the Romans. His principal minor writings were collected in his *Kleine historische und philologische Schriften* (2 vols., Bonn, 1828-'43), and his *Nachgelassene Schriften nicht philologischen Inhalts* (Hamburg, 1842). In 1838 appeared his *Lebensnachrichten* (2 vols., Hamburg), consisting largely of his correspondence, abridged and translated into English by Miss Winkworth, with important additions by Bunsen, Brandis, and others (3 vols., London, 1852).

NIEBUHR, Karsten, a German traveller, born in Lüdingwort, Lauenburg, March 17, 1733, died in Meldorf, Holstein, April 26, 1815. He was the son of a small landed proprietor, and both his parents died when he was very young, leaving him poor, though not destitute. Having chosen the profession of land surveyor, he went to Hamburg, where he studied for two years, and then spent a year at Göttingen, chiefly devoted to the study of mathematics. About this time Count Bernstorff, the minister of Frederic V. of Denmark, undertook to carry out the suggestion of Michaelis to send a scientific expedition to the East, for the purpose of illustrating Old Testament geography and natural history, and Prof. Kästner of Göttingen recommended Niebuhr as mathematician. He spent two years in preparation, practising astronomical observations, and studying Arabic under Michaelis. He refused the title of professor, thinking his qualifications undeserving that distinction, but accompanied the expedition as mathematician and treasurer, with the rank of lieutenant of engineers. The expedition sailed in Jan. 1761, and after touching at Constantinople proceeded to Alexandria, and ascended the Nile, reaching Cairo Nov. 10. After making an examination of the pyramids and other antiquities of lower Egypt, they went with a caravan to Suez, whence Niebuhr made an excursion to Mount Sinai. In Oct. 1762, they took ship from Suez to Loheia, and thence travelled by land to Mocha, where Von Haven, the philologist, died in May, 1763; and on their journey to Sana, the capital of Yemen, they lost the naturalist Forskäl. They were well received at Sana, but dreading the climate they resolved to abandon further exploration of Yemen, and returned to Mocha, where the whole party were taken sick while waiting for a ship to convey them to India. They at length obtained passage in a Scotch ship to Bombay. Baurenfeind, the draughtsman, died on the voyage, and Cramer, the physician, the last of Niebuhr's companions, expired soon after their arrival. Niebuhr himself was only saved by his prudence and care of his diet. He remained 14 months in Bombay arranging his journal, and then turned homeward, visiting Muscat, Bushire, Shiraz, and the ruins of Persepolis, ascending the river Euphrates to the ruins of Babylon, and thence going to Bagdad and to Mosul, where he joined a caravan going to Aleppo. Having received permission from the Danish government to prolong his travels, he passed over to Cyprus, and returning made a tour in Palestine, went with a caravan across Mt. Taurus to Broussa in Asia Minor, arrived at Constantinople in Feb. 1767, and finally reached Copenhagen in November of the same year. The whole expense of the expedition, through his prudent management, was only $20,000. He was received in Denmark with marked honor. He published the first fruits of the expedition in German under the title of "Description of Arabia" (Copenhagen, 1772), the government defraying the expense of the illustrations. In 1774–'8 he continued his narrative by publishing his "Travels in Arabia and the Neighboring Countries" (2 vols., Copenhagen). The 3d volume was not published till after his death in 1837; it bore the same title as the preceding, and contained an account of his homeward journey, through Aleppo, Jaffa, Jerusalem, and Constantinople, with brief notices of Bulgaria, Wallachia, Poland, and Germany. He contributed to a German periodical a paper on the "Interior of Africa," and one on the "Political and Military State of the Turkish Empire." He also edited Forskäl's papers, *Descriptiones Animalium*, and *Flora Ægyptiaco-Arabica* (4to., 1775). The works of Niebuhr contained much new information in regard to the East, and were written in such a clear and unaffected style that they were regarded as almost classical. The Danish government rewarded his services with the cross of Dannebrog; in 1802 he was made a member of the French institute; and in addition to other honors, the title of councillor of state was conferred on him by Hanover in 1808. From 1768 to 1778 he resided at Copenhagen as a captain of engineers, and in the latter year received a civil appointment at Meldorf. Toward the close of his life he became blind. His son, the historian, who wrote his life (Kiel, 1817), says of him: "He was, and remained through life, a genuine peasant, with all the virtues and also the little failings of his order. He was certainly self-willed and obstinate. His character was perfectly irreproachable, and his morals were extremely strict and pure."

NIEL, Adolphe, a French general, born in Muret, Pyrénées, Oct. 4, 1802. He entered the polytechnic school of Paris in 1821, and the military academy of Metz in 1823, and commenced his military career in 1825 as a 2d lieutenant of engineers. In 1836–'7 he distinguished himself in the expedition against Constantine in Algeria, and was promoted, Oct. 25, 1837, to command the corps of engineers in that province. On his return to France he gained distinction by his labors as military engineer under the orders of the ministry of war, and was appointed colonel in 1846. In 1849 he accompanied Gen. Vaillant in the expedition to Rome. He became general of division in 1853, commanded in 1854 the siege operations against Bomarsund, and in 1855 was appointed adjutant of Napoleon III., and was employed in the siege of Sebastopol. In 1857 he became a member of the French senate. In 1859 he took a prominent part in the Italian campaign, and decided by the skilful operations of the artillery under his command the victory of Solferino (June 24), after which he was made a marshal of France.

NIEMCEWICZ, Julian Ursin, a Polish author and statesman, born in Skoki, Lithuania, in 1757, died in Paris, May 21, 1841. He was educated in the military academy of Warsaw, and became an adjutant of Czartoryski; but he left the military service in 1788 with the rank of major, and served from 1788 to 1792 in the constituent Polish diet as a deputy of Lithuania, being one of the most active members of the liberal reform party, the leading ideas of which he strove to make popular by his writings in prose and verse. On the outbreak of the revolution of 1794 he fought on the side of Kosciuszko, and afterward shared his imprisonment in Russia, and accompanied him in 1797 to America, where he married an American lady. After Napoleon's invasion of Poland he returned to Warsaw (1807), and was appointed secretary of the senate; subsequently, after the annexation of his native country to Russia, he became president of the committee on the new constitution, in the authorship of which he took a prominent part. During the revolution of 1830 he was a member of the administrative council, and exercised great influence in the senate, where in his capacity of secretary he drew up the resolution which expelled the Romanoff family from the throne of Poland. Shortly before the fall of Warsaw he left for Paris, where he spent the rest of his life. His eulogy on Kosciuszko is considered as a masterpiece, and he is held in high regard as one of the great Polish patriots, although his preference for a constitutional monarchy injured his popularity among the democrats. His principal works are his *Spiewy historyczne*, or "Historical Songs of the Poles," with historical sketches (Warsaw, 1816), which were set to music and attained immense popularity; the history of the "Reign of Sigismund III." (1819); and his brilliant historical novel, "John of Tenczyn" (1825). In his "Leb and Sarah, or Letters of Polish Jews," he illustrates the peculiar moral and intellectual condition of the Jewish population of Poland. His fables and tales in the style of La Fontaine are admirable. A complete edition of his poetical works was published in 12 vols. in Leipsic in 1840, but his other works have not yet been collected. He also left many posthumous writings, of which *Notes sur ma captivité à St. Pétersbourg* was published in Paris in 1843.

NIEMEN, a river of Europe, rising in the Russian government of Minsk, and flowing W. to the town of Grodno, partly separating the governments of Wilna and Grodno, then N. between those of Wilna and Augustowo to Kovno, and finally W. between Augustowo and Kovno, and thence through Prussia to the Curisches Haff, an arm of the Baltic. After entering Prussia it takes the name of Memel. About 8 m. below Tilsit it divides into two branches, one of which is called the Rust, and the other the Gilge. The delta which they form, called the island of Kaukehnen, is remarkable for its fertility. The chief tributaries of the Niemen are the Wilia, Joura, and Zelva. The principal towns on its banks are Grodno, Kovno, Tilsit, and Gilge. The entire length of this river is about 450 m., not more than 50 of which are in Prussia. It is the main outlet for the products of the countries through which it flows. As the snows of the regions which it drains dissolve rapidly on the approach of summer, the Niemen frequently rises 20 or 30 feet above its ordinary level, causing great devastation. It is connected by the Oginski canal with the Dnieper and the Black sea.

NIEMEYER, August Hermann, a German theologian and author, born in Halle, Sept. 11, 1754, died there, July 7, 1828. He studied theology at the university of Halle, where in 1780 he was appointed professor, and in 1784 he became inspector of the royal *Pädagogium*. In 1808 he became perpetual rector of the university. Napoleon abolished the institution in 1813, but on its restoration he was reappointed. The 50th anniversary of his reception of the degree of M.A. was celebrated at Halle, April 18, 1827, on which occasion the king granted his petition for an appropriation for a new university building. He was a popular writer on practical religion and education.

NIEPCE, Joseph Nicéphore, a French chemist, one of the inventors of photography, born in Châlons-sur-Saône in 1769, died in 1833. After serving in the army for one year, he was obliged by severe illness to resign, and was appointed civil administrator of the district of Nice, which post he held from 1794 to 1801. Retiring then to private life, he devoted himself to the study of mechanics and chemistry, and as early as 1813 made a series of investigations, which he styled "heliographic researches," to find the means of fixing images upon metallic plates by the agency of light. In 1824 he had partially succeeded in producing pictures, first on tin and polished glass, then on copper, and finally on silver, the surface having in each case been covered with a thin film of bitumen; but the process was very slow. In the mean time Daguerre had been engaged upon the same problem, and in 1829 the two experimenters entered into a copartnership to improve the discovery, which, according to the terms of agreement, had been made by Niepce; but the latter died before it was perfected. —See *Histoire de la découverte improprement nommée daguerréotype*, by Isidore Niepce fils.

NIEPCE DE ST. VICTOR, Claude Marie François, a French chemist and inventor, nephew of the preceding, born at St. Cyr, near Châlons-sur-Saône, July 26, 1805. He was educated in the military school of Saumur, and commissioned a sub-lieutenant in the 1st regiment of dragoons. While quartered at Montauban, he was led by accident to devote his attention to chemistry, with particular reference to the process of dyeing. An order having been issued by the minister of war that the facings, cuffs, and collars of a number of cavalry regiments should be changed from crimson and rose color to orange, Lieut. Niepce submitted a method for discharging the original color and substituting the desired tint at a cost of half a franc the uniform, or about one twelfth of the original estimate. His method was examined and accepted, and a reward of 500 francs was bestowed upon him for saving the government an expenditure of 100,000 francs, with permission to exchange into the municipal guard of Paris, in order that he might more advantageously pursue his chemical studies. It was not however until April, 1845, 3 years afterward, that the promised appointment was bestowed. In the interval he devoted himself to experiments in photography, with a view of perfecting the process partially discovered by his uncle; and in 1847 the results of his labors were communicated to the academy of sciences in two papers, the first of which related chiefly to the reproduction of designs by the use of vapors of iodine, and the second, entitled *Premier mémoire de la photographie sur verre*, announced his method of obtaining images on glass plates coated with a film of starch, gelatine, or albumen. A second memoir, presented in the succeeding year, exhibited some important improvements in the process, which was soon after almost universally adopted by photographers. He pursued at the same time a contemporary course of experiments in producing photographic pictures in colors, and in 1851-'2 presented to the academy several memoirs on the subject. He succeeded in obtaining upon silvered plates, washed with chloride of copper, accurate representations of a variety of colored objects, but was unable to fix the tints, which gradually faded, and finally disappeared altogether. In 1853 he presented to the academy an account of his process of producing photographically engraved steel plates, called by him heliography, and which was in fact a development of an imperfectly described method practised by his uncle. He obtained the impression of the image upon a polished steel plate covered with a thin film of varnish, of which benzine was the chief ingredient; after which the picture was bit in with acid as in the process of etching. Many excellent impressions have been entirely produced by this process, although in general it is found expedient to retouch them with the burin. His promotion kept pace with his scientific discoveries, and, having reached the rank of *chef d'escadron*, he was in 1854 appointed by the emperor Napoleon commandant of the Louvre, a position enabling him to pursue his labors in photography at comparative leisure. In 1855 he published, under the title of *Recherches photographiques*, all the memoirs on photographic subjects presented by him to the academy, and in the following year produced a paper on the possibility of engraving photographically on glass as well as metal. He has also made photographic etchings on marble, and by filling the depressions with various colored acids has obtained effects equalling those of choice mosaics. He is constantly engaged in perfecting the various processes discovered by him, but refuses to secure his inventions by patent for his own benefit.

NIEUWENTYT, BERNARDUS, a Dutch mathematician and philosopher, born in Westgraafdyk, North Holland, Aug. 10, 1654, died in Purmerend, May 30, 1718. He studied law, medicine, logic, philosophy, and mathematics, and, settling in the town of Purmerend, became famous as an orator, physician, and magistrate. His mathematical works enjoyed an ephemeral popularity in consequence of their attacks on the infinitesimal calculus. His most important production is his treatise on "The Right Use of contemplating the Works of the Creator" (Amsterdam, 1715). From this treatise Paley is supposed to have borrowed the substance of his essay on "Natural Theology." An English translation of Nieuwentyt's book, by Chamberlayne, appeared in London in 1718–'19, under the title of "The Religious Philosopher."

NIÈVRE, a central department of France, comprising the old province of Nivernais, bounded N. by the department of Yonne, E. by Côte d'Or and Saône-et-Loire, S. by Saône-et-Loire and Allier, W. by Cher, and N. W. by Loiret; area, 2,632 sq. m.; pop. in 1856, 326,086. It is intersected from S. E. to N. W. by the mountains of Morvan, which divide the basin of the Seine from that of the Loire, and culminate in Mont Prenelay, 2,912 feet above the sea. The surface N. of this chain is an alternation of rugged hills and deep valleys; but in the S. lie extensive plains sloping gently to the Loire. The principal rivers are the Loire, Allier, Yonne, Aron, and Nièvre. The climate is mild but moist. The soil is not in general remarkably fertile. The quantity of wine made annually averages about 6,000,000 gallons. Mining, especially of iron and coal, is largely carried on. Woollen cloth, linen, and hardware are manufactured. Capital, Nevers.

NIGER, QUORRA, or KWORA, a river of central Africa, which falls into the gulf of Guinea by several mouths, between the bights of Benin and Biafra. The Niger is formed by two principal rivers, the Benoowe or Chadda (see BENOOWE) and the Joliba, the latter of which is the more western, and is believed to be the main stream. It rises in lat. 9° 25′ N., long. 9° 45′ W., in the mountains upon the borders of Liberia, about 200 m. from the sea, and for ⅔ of its entire length pursues a general N. E. though very circuitous course toward the Sahara. Near Cabra, the port of Timbuctoo, it turns E. and afterward S. E., and near the Kong mountains, in lat. 7° 47′ N., long. 7° 27′ E., is joined by the Benoowe, from which point it flows S. S. W. and finally S. W. till it falls into the ocean after a course of about 2,500 m. For the first 70 m. it is called the Timbri; it afterward receives the name of Baba or Joliba, and below Timbuctoo is known as the Quorra. For rather more than 200 m. between Curuassa and Bammakoo the course of the river is unknown; but between the latter place, lat. 13° N., long. 5° 20′ W., and Timbuctoo, lat. 18° N., long. 3° 40′ W., it has been laid down by Mungo Park and Caillé. Mungo Park was the first European traveller who reached its banks in the upper part of its course. In his first journey (1796) he traced it for about 160 m. between Bammakoo and Silla. He found its banks fertile and populous, and in the rainy season overflowed for a considerable distance back from the shore. In his second journey (1806) Mungo Park embarked at Sego, between Bammakoo and Silla, and descended the river more than 1,000 m. to Boussa, where he was killed. The loss of many of his papers deprived the world of the information which he had gathered, but Caillé has partly supplied the deficiency. He descended the river from Jennee to Timbuctoo, and found the country through which it flowed in some places well cultivated and populous. The boats which he saw trading on this part of the river were from 60 to 80 tons burden, and were worked without sails by a crew of about 20 men in each. S. of lat. 16° N. the Quorra flows through Lake Debo, which is of considerable length and about 10 m. wide. After passing this lake the country is better cultivated and more thickly inhabited, and a considerable traffic is carried on with Timbuctoo. It is stated by Dr. Barth, who visited Timbuctoo in 1858, that the river overflows the surrounding country, and that in consequence the climate in the neighborhood of that city, during the season of the inundation, is very unhealthy. Above Timbuctoo the river separates into two branches, which unite a little further down. Cabra, the port of Timbuctoo, is situated on the N. branch. Between Timbuctoo and Yaoori the Quorra leaves the great plain of Soodan; and above the latter place it flows through the narrow country of Dindina, enclosed by mountains and inhabited by a tribe of Tuaricks, who are superior in industry and civilization to their neighbors. The river Rima, Sackatoo, or Zirmi joins the Quorra from the E., S. of the Dindina country; the town of Sackatoo is situated on it. There are several important places in this neighborhood, to which considerable quantities of American and British manufactures find their way. Dr. Barth states that the former are sent up the Quorra in American steamers, and the latter come across the desert in caravans from Tripoli and the Mediterranean coast. American commerce is said to be extending widely in these regions. The brothers Lander navigated the Niger from Yaoori to its mouth. Between Yaoori and lat. 7° it is only navigable during and after the rainy season. In this part of its course the Niger runs through a low valley in a mountainous country, and the banks are annually inundated, very fertile, and well peopled. Between lat. 7° and 8° the mountains in many places approach both sides of the river, and the valley is nowhere very wide nor thickly inhabited. Near lat. 6° the Niger leaves the mountain region and enters an alluvial plain, where it divides into numerous branches. This delta is mostly swampy, and covered with jungle, with high forests in some places. The more elevated parts, however, are cultivated, and villages appear at intervals. The principal arm of the delta is called the Nun.—It is now generally admitted that the upper part of the Quorra, or modern Niger, is the same as the Niger of Ptolemy and Strabo. Pliny thought it was an affluent of the Nile, and the same opinion long continued to be held. Ptolemy describes its upper course with some accuracy, but he supposed it to be an interior river, which lost itself somewhere in the African sands without ever approaching the sea. Abulfeda, Edrisi, and Leo Africanus believed that it rose near the sources of the Nile and flowed westward. When the Portuguese explored the W. coast of Africa they discovered the rivers Senegal, Gambia, and Grande, each of which in succession they supposed to be the Niger, and explored to its source in the hope of reaching Timbuctoo. Even after the real direction of the Niger began to be suspected, it was supposed for some time to be identical with the Congo river, and Mungo Park explored it with this idea. It was not until the discoveries of Richard Lander, who in 1830 navigated the river from Yaoori to the Atlantic, that the question was set at rest. The explorations of Dr. Barth are among the most valuable that have lately been made. (See BARTH, BENOOWE, CLAPPERTON, LANDER, PARK (MUNGO), &c.)

NIGHT-BLOOMING CEREUS. See CEREUS.

NIGHT HAWK, a North American goatsucker of the sub-family *caprimulginæ* and genus *chordeiles* (Swains.). In the *C. Virginianus* (Swains.) the length is 9½ inches, and the extent of wings about 23½; the bill is very small and curved, with a wide gape furnished with a few very short hairs, and the tip hooked; the wings very long and pointed, the 2d quill the longest; the tail long, broad, and forked; tarsi short and partly feathered, and toes feeble; the head large and flat, the eyes and ears large, neck short, and body slender; the plumage is soft and blended. The male is greenish black above, slightly mottled on the head and back; wing coverts varied with grayish, and the scapulars with yellowish rufous; a white V-shaped mark on the throat, and terminal patch on the tail; a collar of pale rufous blotches, and grayish mottled on the breast; under parts transversely banded with rufous white and brown; quills brown; 5 outer primaries with a white blotch midway between the tip and carpal joint; the female has not the white patch on the tail, and that on the throat is mixed with reddish. The common name of this bird is ill-chosen, as it is not a hawk, nor does it fly by night; in cloudy weather it flies all day, and its favorite time is from an hour before sunset to dark; it passes the night on the ground or on a tree, while its allies the chuck-will's-widow and the whippoorwill are then most active and noisy. It is very generally distributed over North America, appearing in Louisiana on the way to the north and east about April 1, in the middle states about May 1, in Maine about June, going even into New Brunswick and Nova Scotia, and returning to the south in autumn. The flight is rapid, light, graceful, and capable of long continuance; it is fond of skimming like a swallow over marshes in search of food; in its aërial evolutions it makes frequent and sudden turnings, ascending almost perpendicularly and descending with great impetuosity, like a hawk, uttering usually a squeaking cry. From the small size and backward position of the legs, it can hardly walk, or stand erect. It breeds from South Carolina to Maine; in the middle states it deposits 2 freckled eggs about May 20, on the bare ground, without any nest; both sexes assist in incubation, and the female adopts various devices to distract attention from her eggs or young. The food consists of insects, especially beetles, moths, caterpillars, crickets, and grasshoppers; the night hawk drinks while flying low over the water, in the manner of swallows. Their flesh is esteemed as food when they return from the north in autumn, as it is then fat and juicy.—Other species are the western night hawk (*C. Henryi*, Cassin), much resembling the last, if not a mere variety, from the Rocky mountains of New Mexico; and the Texas night hawk (*C. Texensis*, Lawr.), which is smaller, and has rounded rufous spots on both webs of the quills.

NIGHT HERON, the common name of the division *nycticoraceæ* of the family *ardeidæ* or herons. The common night heron of America is the *nycticorax nævius* (Bodd.), or *nyctiardea Gardeni* (Baird); the bill is 3¼ inches long above, very stout, curved from the base, with emarginated tip and compressed grooved sides; wings long, the 2d and 3d quills longest; tail short and even, with 12 feathers; tarsi strong, as long as the middle toe, covered with small scales; toes long and slender, united at the base by a membrane, the outer the longest, and the hind one even with the others; claws moderate, slightly curved, and acute; the neck short, with a long occipital plume of 3 feathers, rolled together; body slender and compressed; lower fifth of tibia bare. The bill is black, the iris red, and the feet yellow; the head above and the middle of back steel green; wings and tail ashy blue; forehead, under parts, and occipital feathers white, passing into pale lilac on the sides and neck; the length is 25½ inches, the extent of wings about 43, and the weight nearly 2 lbs.; the adult female resembles the male, but the young are grayish brown above. It is distributed generally over the United States, residing permanently in the southern portion; in the eastern states it is called the "qua" bird from the noise which it makes. Going north in the spring, some get as far as Maine; at Hingham, Mass., and in the woods near Fresh pond, Cambridge, there used to be famous heronries, to which the birds returned year after year, until the persecutions of those in search of their young drove them away entirely or into more inaccessible places. The nests are made of coarse sticks on bushes or trees, often overhanging the water, and are revisited and repaired annually; they congregate in large numbers in the breeding season, during which they lose their natural shyness; the eggs are usually 4, 2 by 1½ inches, of a plain light sea green color and thin-shelled. By day they are harassed by crows, hawks, and vultures, and by racooons and other animals at night. The young birds are as tender and juicy as pigeons, without the fishy taste of the adults, and are in great request for the table. They return to the south in autumn. The night heron generally remains on the low swampy lands near the coast, where it feeds upon fish, reptiles, crustaceans, water insects, leeches, and even mice and such other small animals as fall in its way. The flight is slow, steady, and long continued, with the head drawn in and the legs extended; on the ground it is very restless, and without the grace of the true herons.—The European night heron (*N. griseus*, Strickl.) is similar, but smaller, and the young have not the white spot at the apex of the quills seen in the American bird. Several other species occur in other parts of the world. The yellow-crowned night heron (*N. violaceus*, Bonap.), found in the southern Atlantic and gulf states and in South America, is a little smaller, with the neck and body grayish plumbeous, the head bluish black, the hood and a broad patch on the side of the head yellowish white, and the scapulars dusky with grayish plumbeous edgings and considerably elongated.

NIGHTINGALE (*luscinia philomela*, Bonap.; the *philomela* of the ancients and *rossignol* of the French), one of the finest of European singing birds, whose melody has been celebrated in prose and verse from time immemorial. The genus belongs to the sub-family of warblers, from which it differs principally in its more slender shape, and longer bill, tarsi, and tail; it comes near many of the smaller thrushes both in form and color, and in the character of the song. In this genus the bill is short and straight, with the culmen slightly curved, sides compressed, and tip emarginated; the gape without bristles; the wings moderate, with the 1st quill ½ the length of the 2d, and the 3d the longest; the tail moderate, rounded at the sides; tarsi long and strong, covered in front with an entire scale; toes very long and slender, the outer longer than the inner and united at the base; hind toe long, with a curved claw. The length is 6¾ inches, the extent of wings 10½, and the bill about ½ inch. Though so fine a songster, the nightingale is very plainly colored; the upper parts are rich brown, with a reddish tinge on the back and tail; below grayish brown, with the throat and abdomen whitish; the female is like the male in color, and is nearly of the same size; there is considerable variation in the reddish and grayish tints, and in the occurrence of white feathers. They begin to appear in the middle of France about the first week in April, and in England a week or 10 days later; the males arrive a few days before the females, travelling singly and at night; they get mated in about a week, and commence their nests on the ground in thickets; these are rudely made of leaves and grasses, and the 4 or 5 eggs, ¾ by $\frac{7}{12}$ of an inch, are of a pale brownish color, sometimes tinged with grayish blue, especially at the small end; both sexes incubate. It is a migratory bird, passing the winter in northern Africa, but in the summer found over the greater part of Europe, even to Sweden and temperate Russia; it is said not to be found in Great Britain north of the Tweed. They begin to sing when mated, and continue in full song till the young are hatched; the notes are most rich at the beginning of summer, and toward the end it becomes a single low croaking note. They are very shy, remaining concealed as much as possible among the foliage; they frequent woods, hedges, and thickets, feeding on insects and larvæ, soft berries, and fruits; the flight is short, even, and swift, but not so rapid as that of the true warblers and flycatchers which seize insects on the wing. Though the song is heard at intervals during the day, it excites the greatest admiration on quiet evenings an hour or two after sunset; when the moon is nearly full and the weather is serene and still, it may be heard till midnight, and is then exceedingly pleasing. Virgil and other classical poets, from the melancholy character of part of its song, call it *miserabile carmen;* though it would seem an insult to modern poets to hint that the song of the nightingale has been overestimated in comparison with that of other native and foreign birds, some have gone to the extreme of regarding it as inferior to that of many thrushes; its natural song is certainly very sweet, but not more so, in the opinion of Audubon, than that of the black-capped warbler, and but little, if at all, superior to that of the wood lark; the song of the sky lark is far more spirited, more prolonged, and of much greater compass, though less sweet; the notes of the American mocking bird are very much sweeter, more varied, of greater compass, power, and duration; and many birds, which naturally have no song, like the bullfinch, can be taught to sing in perfect time and tune, which the nightingale cannot. But, take it as a whole, it must be confessed to be superior at least to that of all British songsters; Izaak Walton exclaims in regard to it: "Lord, what music hast thou provided for the saints in heaven, when thou affordest bad men such music on earth?" The compass of its song is only 11 or 12 notes. (See Macgillivray's "British Birds," vol. ii. p. 331, London, 1839.) The males only sing, and, like other migratory birds, never during the winter in cages, and not till after the spring moult. They are short-lived in captivity from being kept too warm and from improper food; this should be chiefly insects, or small bits of meat and fruits.

NIGHTINGALE, Florence, an English philanthropist, born in Florence, Italy, in 1823. She is the younger daughter and co-heiress of William Edward Shore, of Embley, Hants, and Lea Hurst, Derbyshire, and descendant of an old and respectable Sheffield family, who inherited the estates of his paternal grand-uncle Peter Nightingale, and in pursuance of his will assumed in 1815 the name of Nightingale by royal sign manual. Her mother is a daughter of the late William Smith, who was for many years a member of parliament for Norwich, and distinguished as an advocate of negro emancipation. As the child of cultivated no less than of wealthy parents, the youth of Florence Nightingale, as well as that of her elder sister Parthenope, was passed under circumstances favorable to her intellectual development. Under the guidance of her father she attained proficiency in classics and mathematics, and a general acquaintance with science and art. She also became a good musician and proficient in modern languages, a branch of study which was facilitated by her early visits to many parts of Europe. From early childhood the care of the sick was a favorite occupation with her, and no reading possessed such attractions for her as that which treated of hospitals and other institutions for the infirm, helpless, and diseased. In her girlhood she often visited the schools and hospitals in the neighborhood of Lea Hurst, her father's residence, and subsequently the hospitals of the larger towns, devoting much attention to the best of London. She was at this time specially impressed with the necessity of an institution for training nurses. The sisters of charity of the Catholic church seemed to her to need a counterpart in the Protestant communion. At length she learned that such an institution existed at Kaiserswerth on the Rhine, in the "school of deaconesses" founded by Amelia Sieveking and the venerable Pastor Fliedner. To this school Miss Nightingale went in 1849, to qualify herself still further for the work of ministering to the sick. She entered as a voluntary nurse, placing herself under the care of Fliedner, and going through the regular course of training. After spending a little more than 6 months here, she returned to England, and for some months was in feeble health. In 1851, learning that the sanatorium for invalid and infirm governesses in Upper Harley street, London, was in need of competent management, she took charge of it, and in 15 months brought it into a far higher state of efficiency than it had ever previously possessed. This accomplished, she returned home again. In 1854 the need of good nurses and efficient hospital service in the Crimea was painfully felt, and the exposure of some of the abuses connected with it in the "Times" newspaper roused the attention of the whole British nation. A corps of voluntary female nurses was proposed, and at the solicitation of Mr. Sidney Herbert, the secretary at war, Miss Nightingale consented to go out as the superintendent of a staff of nurses; 42 went with her, and 50 more followed subsequently. Many of these were ladies of high social position, moved to devote themselves to this work solely by patriotism and philanthropy. On Nov. 5 Miss Nightingale and her corps arrived at Constantinople, and took up their quarters in the barrack hospital of Scutari. Two days later 600 wounded soldiers were sent to them from the battle of Inkermann; by the 30th of the month there were 3,000 sick and wounded at Scutari, and within 6 weeks 10,000 in the different hospitals on the Bosporus. The disorder and want of suitable arrangements, of beds, food, and medicine, when Miss Nightingale commenced her labors, would have appalled almost any one else; but, possessing rare executive ability as well as thorough knowledge of what was necessary, she made the hospital in a short time a model in the thoroughness and perfection of its appointments. The other hospitals were made to conform to the same plan under her direction. All this involved an immensity of labor on her part; often she stood for 20 hours in succession giving directions, but she had always a pleasant smile or a kind word for the sick, and was soon almost idolized by the army. She remained nearly two years in the East, suffering herself one severe attack of hospital fever, but returning to her work as soon as she was able to sit up. She arrived in England Sept. 8, 1856. Her health, never robust, was permanently impaired, and since her return to England she has been much of the time an invalid. Her services have secured the sincerest gratitude of the British people, and a world-wide renown. The queen sent her a letter of thanks accompanied by a superb jewel; a subscription of £50,000 was raised to found an institution for the training of nurses under her direction; and the soldiers of the army, by a penny contribution, raised a sum sufficient to erect a statue to her honor, which she refused to allow. Miss Nightingale published in 1850 a pamphlet for the benefit of the sanatorium in Upper Harley street, entitled "The Institution at Kaiserswerth on the Rhine for the Practical Training of Deaconesses, under the direction of the Rev. Pastor Fliedner;" and in 1859 "Notes on Nursing," enlarged in a 2d edition (1860).

NIGHTMARE, or Incubus, an affection coming on during sleep, in which there is a sense of great pressure upon the chest accompanied by inability to move. It is well known that uneasy or painful sensations occurring during sleep, when insufficient to wake the patient directly, are apt to produce disagreeable or frightful dreams. Thus persons laboring under a variety of chronic affections, particularly heart disease, upon falling asleep suffer from dreadful illusions; they are attacked by wild beasts or armed men, they are falling down precipices, &c. The same phenomenon often occurs during fever or after mental excitement attended with anxiety. The more common form of nightmare usually comes on during the first sleep, and is caused by a constrained position or by a distended stomach, which act by somewhat impeding respiration. The feeling of oppression thus caused gives rise to the nightmare, and is dispelled at once when the patient awakes, and, bringing the voluntary muscles into play, draws a full breath.

NIGHTSHADE (*solanum nigrum*, Linn.), an annual plant introduced from Europe, and occurring about waste places all over the world. Its stem is herbaceous, smooth, erect, angular; its leaves are sinuate, toothed, and downy; flowers white in small and umbel-like, lateral clusters, drooping, succeeded by numerous black berries filled with a purple pulp, in which the seeds are imbedded. It is slightly narcotic, although it possesses the reputation of a poisonous plant. The common nightshade belongs to the natural order of *solanaceæ*, which embraces many of the most dangerous plants known, as well as many useful and esculent ones.—The deadly nightshade (*atropa belladonna*, Linn.) has ovate entire leaves, dirty violet-brown flowers, and pitted seeds enclosed in a berry destitute of pulp. Its uses in materia medica are well known. The enchanter's nightshade (*circæa lutetiana*) belongs to another order, and is an innocuous plant.

NIGRITIA. See SOODAN.

NIJNI NOVGOROD, or LOWER NOVGOROD, a government of central Russia, bounded N. by Kostroma, N. E. by Viatka, E. by Kasan and Simbirsk, S. by Penza and Tambov, and W. by Vladimir; area, 18,500 sq. m.; pop. in 1856, 1,216,091, about $\frac{1}{15}$ of whom are Tartars, and the remainder chiefly Russians. The province is traversed by the Volga, and by its affluents the Vetluga, Sura, and Oka, and has direct communication by water both with Moscow and St. Petersburg. Steamers proceed by the Volga to Astrakhan, and by the Kama to Perm. The surface is generally level, with a few low hills, nowhere more than 500 feet high, and composed chiefly of limestone. The N. E. portion, enclosed by the Volga and Vetluga, has been until lately almost unknown. It is covered with forests mostly of fir and birch, and has a sandy and in some places marshy soil. The climate is 10° colder than that of the surrounding country. The habitations are almost wholly confined to a few scattered hamlets. The rest of the government is extremely fertile, and, having a mild climate, produces abundance of grain, hemp, flax, and fruit. The forests yield excellent timber. The mineral productions are iron and gypsum. There are few large manufactories, but most of the villages and towns produce on a small scale a great variety of articles, including spun and woven goods, pottery, cloth, soap, candles, iron, and steel.—NIJNI NOVGOROD, the capital of the above government, is situated on the right bank of the Volga, where it is joined by the Oka, 255 m. E. from Moscow, in lat. 56° 20′ N., long. 44° 1′ E.; pop. about 30,000. The principal part of the town is built on a steep triangular promontory, about 400 feet high, between the Volga and Oka, and consists mainly of 8 handsome streets which radiate from an open space in the centre. At the point of the promontory stands the Kremlin or citadel, defended by a wall 30 feet high flanked with towers. The chief public buildings, including 2 cathedrals, a Protestant church, and the governor's palace, are situated within the Kremlin. There are more than 40 churches, one of the finest of which is the church of the holy women. The houses are mostly of wood, but the shops and warehouses are generally of more substantial materials. Cloth, leather, copper and iron ware, soap, candles, and beer, are the principal manufactures; and the trade, which is at all seasons very extensive, is increased by the annual fair in July and August, at which as many as 200,000 persons are present. (See FAIR.) A particular quarter is set apart for this great gathering, and at all other times remains unoccupied.

NIKOLAIEV, or NICOLAIEFF, a town of Russia, in the government of Cherson, near the confluence of the rivers Bug and Ingul, 36 m. N. W. from Cherson; pop. about 40,000. It occupies a large extent of ground, and is fortified. The streets are of enormous width; the houses are generally of one story, and have large gardens attached to them; and there is a fine boulevard planted with trees along the Bug. The principal public edifices are the cathedral, town hall, observatory, admiralty, naval barracks, naval hospital, and hydrographical seminary. The dockyards are very extensive, and well provided with machinery, mostly English. Nikolaiev, since the fall of Sebastopol, has become one of the principal stations of the Russian navy. It is of recent origin, having been founded in 1791, and is mainly indebted for its prosperity to government patronage. The Bug and Ingul, which unite below the town, form an estuary for the accommodation of the Black sea fleet during winter.

NILE (Gr. Νεῖλος; Lat. *Nilus*; Arab. *En-Neel*), the principal river of Africa, and one of the largest and most famous rivers of the world. Near the city of Khartoom, in the Egyptian province of Soodan or Sennaar, in lat. 15° 40′ N., long. 32° 38′ E., two great rivers unite, the larger of which comes from the S. W., and is called in Arabic Bahr-el-Abiad or White river, and in English is commonly known as the White Nile. The other river flows from the S. E., and is called in Arabic Bahr-el-Azrek, Blue, or more properly Black river, and in English is commonly termed the Blue Nile. It is the Astapus of ancient geography, and was long regarded as the true Nile, and as such its sources were visited in the 16th century by the Portuguese Jesuit missionary Paez and some of his associates. On Nov. 14, 1770, Bruce, the Scottish traveller in Abyssinia, after a toilsome and dangerous journey, also succeeded in reaching its remotest fountains, which flow from a small hillock in the midst of a marsh in the district of Geesh, in lat. 10° 59′ 25″ N. and long. 36° 55′ 30″ E., at a height of nearly 6,000 feet above the sea. Here are 3 small, deep springs, which are regarded by the neighboring people with superstitious veneration. Their waters form a stream which flows N. W. for about 80 m., when it falls into the lake of Dembea on its W. side, and issues again on its S. E. side. Its current is so rapid that it scarcely mingles its waters with those of the lake. It now takes the name of the Abai, and, descending from the highlands by many cataracts, flows southward to about lat. 10° N. along the E. side of the province of Amhara, and winds around the mountainous region of Gojam till by a bend to the N. it returns to within about 70 m. of its source. While forming this remarkable curve, which makes Gojam a peninsula, the Abai receives numerous streams from the mountains of that peninsula. Still lower down, in lat 11° 30′, a large river called the Hessen, coming from the S. E., joins the Abai on its right bank. Soon afterward the waters of the Abai mingle with those of a large river called the Dedhesa, and from their junction till they reach the White Nile at Khartoom the united streams are known as the Bahr-el-Azrek or Blue Nile. The Dedhesa is considered by Dr. Beke to be the main stream of the Blue Nile, of which he regards the Abai as only a branch. The Dedhesa rises in the mountains of Enarea, and has a course of several hundred miles W. of S. before it joins the Abai. An expedition led by Russegger, a German traveller, in 1837–'8 ascended its left bank as far as lat. 10° 16′, or considerably above its junction with the Abai. The Blue Nile he ascertained to be navigable as far as Fazogle, under the 12th parallel, about 1,500 m. from the Mediterranean. Its total length from the sources of the Abai is supposed to be about 800 m.—The sources of the Bahr-el-Abiad, or White Nile, so called from the color given to its waters by the clay with which it is saturated, are yet undiscovered, and great uncertainty exists as to the upper part of the river S. of lat. 3° 20′ N., to which point it has been explored by expeditions sent up from Khartoom by the pasha of Egypt. Capt. Speke, an English officer, who, in company with Capt. Burton, travelled in 1858 from the E. coast of Africa to the great lake Tanganyika, the N. extremity of which is in lat. 3° 25′ S., made a separate excursion to Nyanza, another great lake lying 250 m. to the N. E. of Tanganyika, and extending N. from lat. 2° 30′ S. to an unknown distance beyond the equator. A small river flows into the S. end of this lake, and on its W. shore it receives several streams from a mountain range which Capt. Speke calls the mountains of the Moon. On the E. side it is supposed to receive a large river which rises in the snowy mountains S. of the equator, of which Mt. Kenia is the principal peak. Capt. Speke considers Lake Nyanza as the true source of the Nile, and the river Kivira flowing from its N. extremity as identical with the Bahr-el-Abiad. Capt. Burton, who did not accompany him on his excursion to Lake Nyanza, dissents from this opinion, though his objections, as stated in "The Lake Regions of Central Africa," are chiefly theoretical, and are manifestly influenced by personal hostility to Capt. Speke. He admits that "the altitude, the conformation of the Nyanza lake, the argillaceous color, and the sweetness of its waters combine to suggest that it may be one of the feeders of the White Nile;" but says on the other hand: "The periodical swelling of the Nyanza lake, which, flooding a considerable tract of land on the south, may be supposed—as it lies flush with the basal surface of the country—to inundate extensively all the low lands that form its periphery, forbids belief in the possibility of its being the head stream of the Nile, or the reservoir of its periodical inundation. In Karagwah, upon the western shore, the *masika* or monsoon lasts from October to May or June, after which the dry season sets in. The Egyptian expedition found the river falling fast at the end of January, and they learned from the people that it would again rise about the end of March, at which season the sun is vertical over the equator. And as the northern counterslope of Kenia will, to a certain extent, be a lee land like Ugogo, it cannot have the superfluity of moisture necessary to send forth a first class stream. The inundation is synchronous with the great falls of the northern equatorial regions, which extend from July to September, and is dependent solely upon the tropical rains. It is therefore probable that the true sources of the 'holy river' will be found to be a network of runnels and rivulets of scanty dimensions, filled by monsoon torrents, and perhaps a little swollen by melted snow on the northern water-parting of the eastern Lunar mountains." Capt. Burton also discredits the theory that Lake Tanganyika is one of the sources of the Nile, and maintains that the lake has really no outlet. As he was unable to reach its northern extremity, his opinion, which is based chiefly upon questionable native statements, is far from conclusive. The great extent of the lake and the vast quantity of water poured into it by its affluents, together with its freshness, render it highly improbable that it can be without an effluent. A native African, Lief ben Saied, who travelled from Zanzibar to the lake, and furnished an account of his expedition which was communicated by the eminent African geographer Mr. Macqueen to the "Journal of the Royal Geographical Society," says: "It is well known by all the people there that the river which goes through Egypt takes its source and origin from the lake." Capt. Speke also reports, in "Blackwood's Magazine" for Sept. 1859, a statement made by Sheik Hamed, a respectable Arab merchant, who asserted from personal observation that a large river flowed out of the N. end of the lake. The truth of this assertion is, however, denied by Capt. Speke; and Capt. Burton, from inquiries made by him of the people at the furthest northern point reached by the English travellers, unceremoniously pronounces the statement a deliberate falsehood. But Dr. Beke, the highest authority on these questions, says in his recent work on "The Sources of the Nile" (London, 1860), speaking of Lake Tanganyika: "Its elevation of merely 1,800 feet seems to militate against its connection with the Nile, especially as it is said to be encircled and shut in at its N. extremity by a range of mountains. Still, it is not absolutely certain that Tanganyika has no outlet through or round those mountains; and beside, as the elevation of the Nile at Khartoom is only 1,200 feet, while from about lat. 12° N. the main stream and its principal arms are almost on a dead level, we should be wrong in asserting the physical impossibility of a connection between the lake and the river." In the 2d century A. D. the geographer Claudius Ptolemy stated the sources of the Nile to be in two lakes lying N. of a snowy range which he calls the mountains of the Moon, and which he describes as extending for 10° of longitude along the parallel of lat. 12° 30′ S. From the snows of these mountains were principally derived the waters of the two lakes, which were due N. of the mountains, the western lake in lat. 6° and the eastern lake in 7° S., with a distance between them of 8° of longitude. Recent explorations show the substantial accuracy of Ptolemy's information; though, from the inevitable imperfection of astronomical science in his day, his latitudes and longitudes are incorrectly given, and the snowy range of mountains of which he speaks extends from N. to S. instead of from E. to W. The recent Egyptian explorers ascertained that the White Nile above lat. 10° N. divides into several large streams, of which the Sobat and the Tubiri are the principal. The Sobat unites with the Tubiri near lat. 9° N. It is a very large river, and is said to contribute to the main stream nearly half its waters. Little is known however of its upper course, which has never been explored, the Egyptian expeditions having ascended the Tubiri. The latter river, or one of its branches, in the opinion of Dr. Beke, probably flows from Lake Nyanza, which he regards as the eastern lake of Ptolemy. There are reports of a great lake said to be situated in the W. of the Fandongo country, which lake M. Brun-Rollet, a French explorer, lays down conjecturally on the equator, and relatively as much to the N. W. of Tanganyika as Nyanza is to the N. E. This may possibly be the western lake of Ptolemy, and the source of one of the branches of the White Nile. Lopez, a Portuguese traveller near the end of the 16th century, as cited by Pigafetta in his *Relatione del reame di Congo* (1591), reported the existence of two great lakes in the interior of Africa, and says: "The Nile truly has its origin in this first lake, which is in lat. 12° S., and it runs 400 m. due N., and enters another very large lake, which is called by the natives a sea, because it is 220 m. in extent, and it lies under the equator." Dr. Beke is of opinion that the second lake here mentioned is probably not Nyanza, but the yet unvisited lake mentioned by M. Brun-Rollet, if that lake really exists. He says in conclusion: "It is, however, of little avail to reason on insufficient data. This alone is certain—that all the head streams of the Nile must be thoroughly explored before it would be in our power to finally and irrevocably decide which among them is entitled to the designation of the source of the Nile." A French expedition under MM. Miani and Peglioux is now (1860) exploring the White Nile. The latest intelligence from the upper part of the river is from Mr. Petherick of Khartoom, who after ascending from that city 400 m. proceeded by land for 25 days in a southerly direction, and reached, in long. 27° E., and nearly under the equator, a granitic ridge of mountains rising from 2,000 to 2,500 feet above the plain. Beyond that point nothing is yet known.—The course of the White Nile above its junction with the Blue Nile at Khartoom was first explored in 1827 by M. Linant, who ascended the stream as far as El-Ais in lat. 13° 43′ N. A few years afterward Mehemet Ali, pasha of Egypt, determined to have the river explored to its sources. Accordingly, between 1839 and 1842, three expeditions were fitted out for that purpose; the first ascended to lat. 6° 30′ N., discovering on its passage the mouth of the Sobat, Lake No, and the Bahr-el-Ghazal; the second reached lat. 4° 42′ N.; and the third went not quite so far. M. d'Arnaud, the scientific chief of the second and most successful expedition, states in his published report that at about 90 m. beyond the furthest point reached by him several branches united, of which the principal one came from beyond an extensive country called Bari. Lacono, the king of Bari, told the explorers that the course of the river could be followed southward a distance of 30 days' journey or 600 or 700 m. beyond his dominions. Of this expedition an account was also published by Ferdinand Werne, a German who went with D'Arnaud as a volunteer. His work, *Expedition zur Entdeckung des weissen Nils*, has been translated into English under the title of "The White Nile" (2 vols., London, 1849).—In Nov. 1849, Dr. Knoblecher, a Roman Catholic missionary at Khartoom, accompanied the annual trading expedition sent up the Nile by the Egyptian authorities. After 14 days' sailing the expedition passed the islands inhabited by the Shillooks, a numerous and savage negro nation, and reached a part of the river where the banks were covered with continuous villages to the estimated number of 7,000. The river was here so broad that in some places the low shores were hardly visible. The lotus grows abundantly in the shallows, and the appearance of the thousands of snowy blossoms as they flash open at sunrise is described as a scene of vegetable pomp and splendor which can be witnessed in no other part of the world. Beyond lat. 10° is the land of the Dinkas, where the beautiful dhelleb palm is first seen, which has a tall, graceful trunk, thick in the middle, but tapering toward the top and bottom, and a rich crown of large, fan-like leaves. The forests also comprise doum palms and immense tamarinds. On Nov. 29 the vessels reached a large town called Vav, where the people brought quantities of elephants' tusks to exchange for beads. Herds of wild elephants and giraffes were now frequently seen, with numbers of white herons perched composedly on the backs and heads of the elephants. On Dec. 2 the expedition passed the mouth of the Sobat, which is 650 feet broad at its entrance into the Nile. From lat. 9° 26′ to 6° 50′ N. there is a complete change in the scenery. The forests disappear, and the shores become marshy and covered with tall grass. The air is heavy with noxious miasmas and filled with countless swarms of gnats and mosquitoes. The water of the river is partially stagnant and green with vegetable matter. In lat. 9° 16′ is the Bahr-el-Ghazal, or Gazelle lake, thus named from the Gazelle river, which flows into it on the W. side. The depth of the lake is about 9 feet, but the reeds and water plants with which it is filled reach to the surface and render the navigation difficult. Its shores are inhabited by Nuehr negroes. Beyond this lake the course of the river is exceedingly tortuous and its current sluggish. Beyond lat. 8° was the land of the Kyks, a race of herdsmen who have great numbers of cattle and sheep. Their principal chief resides at the village of Augwen. South of the Kyks dwell the Elliabs, in whose country the river divides into two branches. On Dec. 31 the expedition reached the country of the Zhirs; and on Jan. 2, 1850, Dr. Knoblecher saw in the S. E. the granite mountain of Nierkanyi, which is in the Bari country in lat. 5° N. It was the first elevation he had seen since passing lat. 10° 35′. The intervening space is a vast plain interspersed with reedy swamps of stagnant water. The Zhirs are very superior to the Nuehrs and Kyks in stature, shape, and manners, own numerous flocks and herds, and cultivate large fields of grain. They go entirely naked, but are remarkably chaste and modest. On Jan. 14 the expedition reached the rapids of the White Nile at the island of Tsanker, in lat. 4° 49′ N., the furthest point reached by any previous expedition. Dr. Knoblecher, however, succeeded in passing the rapids and in sailing 16 m. further through a broad, lake-like expanse of the river, to the Bari village of Tokiman. The country was exceedingly rich and beautiful, abounding in trees and densely peopled; the current of the river was rapid, and the atmosphere pure and healthful. On Jan. 16 the expedition reached Logwek, a village which takes its name from a granite peak 600 feet high on the left bank of the Nile, in lat. 4° 10′. Dr. Knoblecher ascended this hill, which commanded a view of almost the entire Bari country, and saw the river winding out of sight among a range of mountains toward the S. W. Its width at Logwek was about 650 feet and its depth from 5 to 8 feet, the season being a dry one. The Baris are a fine race of negroes, many of them 7 feet high, with well knit, symmetrical, muscular, and active forms. They are fearless and independent in their demeanor, and cheerful, good-natured, and affectionate. In smelting and working iron they show remarkable skill, and their spears are elegantly formed and admirably tempered. Beyond Logwek Dr. Knoblecher was unable to penetrate; and although several European explorers have since ascended the White Nile, nothing definite is at the present time (Dec. 1860) known of the result of their researches. Bayard Taylor, in his "Journey to Central Africa," thus concludes his account of Dr. Knoblecher's expedition: "The pictures which these recent explorations present to us add to the stately and sublime associations with which the Nile is invested; and that miraculous flood will lose nothing of his interest when the mystery which veils his origin shall be finally dispelled. Although, in standing upon the threshold of his vast central realms, I felt that I had realized a portion of my dream, I could not turn away from the vision of those untrodden solitudes, crowned by the flashing snows of Kilimandjaro, the monarch of African mountains, without a keen pang of regret. Since Columbus first looked upon San Salvador, the earth has but one emotion of triumph left in her bestowal, and that she reserves for him who shall first drink from the fountains of the White Nile, under the snow fields of Kilimandjaro."—From Khartoom the united waters of the White Nile and Blue Nile flow northward about 50 m., and then make a sudden bend to the E. between a thick cluster of islands. At this point there is a rapid extending half way across the river, and dignified by the title of the 12th cataract of the Nile, it being the last which is met in ascending from the sea till the traveller reaches on the White Nile the rapids in the Bari country, and on the Blue Nile the cataracts by which the river descends from the Abyssinian highlands. Here the Nile is very narrow, being compressed between high hills of naked red sandstone rock. From the 12th cataract it flows in a S. E. direction to Shendy, and is studded with islands covered with a luxuriant growth of palms, mimosas, acacias, sycamores, and other trees. The banks are high and steep and covered with bushes and rank grass. Reefs of black rock make the navigation intricate and dangerous. The country is thickly populated with Shygeean negroes. Shendy is a long straggling town of mud huts, with about 10,000 inhabitants. From Shendy the river runs N. E. past the ruins of Meroë and through a country cultivated with durra and cotton of excellent quality. At the distance of 160 m. below Khartoom, in lat. 17° 45′, the Atbara, called also Bahr-el-Aswad or Black river from the quantity of black earth brought down by it during the rains, enters the Nile on the right bank, flowing from the S. E. It is the ancient Astaboras, and comes from Abyssinia, where it is known as the Tacazze. The peninsula between it and the Blue Nile was the ancient kingdom of Meroë, which was called an island by the Greek and Roman writers, who were accustomed to give this name to the irregular spaces included between confluent rivers. The Atbara is the last confluent of the Nile, which for the rest of its course presents the unparalleled phenomenon of a river flowing 1,500 m. without a branch. It contributes to the Nile the largest part of the slimy mud which fertilizes Egypt. At about 50 or 60 m. up its stream the Atbara receives from the E. the Mogreb, which rises in the Bishariyeh mountains near the Red sea; and 100 m. higher up still, on the E. side, it approaches the Khor-el-Gash, a stream which flows into the Red sea, while its waters during and after the rainy season also overflow into the Atbara, though during the dry season this communication altogether ceases. In lat. 14° N. the Atbara divides into two great streams, the larger of which bears the name of Tacazze, and rises in the table-land of Abyssinia in the provinces of Angot and Lasta; and the other, the Gwangwe or Goang, which is the direct continuation of the Atbara, has its sources in the highlands to the N. and N. W. of Lake Tsana or Dembea. From its confluence with the Atbara the Nile flows through Nubia for 700 m. to Syene or Asswan on the frontiers of Egypt. It passes over a series of rapids and cataracts, all composed of granite or kindred rocks. For 120 m. from the Atbara it runs nearly N. through the country of the Berbers. A strip of arable land about 2 m. in breadth borders the river; beyond it all is desert, the inundation not extending further. At Aboo Hammed, where the river is divided by the large rocky island of Mogreb, it makes a great bend to the S. W., and runs in that direction about 100 m., enclosing on its left bank a region called the desert of Bahiouda, which was occupied in ancient times by the Nubæ, from whom Nubia derives its name. The navigation in this part is impeded by rapids, and the land susceptible of cultivation is so small in extent that the inhabitants avail themselves of the patches of loamy soil which the river deposits in the rocky hollows. Travellers going down the Nile quit the river at Aboo Hammed and cross the desert to Korosko, a march of 250 m., while by the course of the river the distance between the same points is upward of 600 m. The banks of the Nile where it skirts the desert of Bahiouda on the N. contain no antiquities; but at Nouri on the left bank, below the 4th cataract, are the remains of 35 pyramids, of which about half are in good preservation; they have, however, no sculptures or hieroglyphics, nor are there any ruins which indicate the former existence of a city. Eight miles below Nouri, on the right bank, is Jebel-el-Birkel, a hill of crumbling sandstone 400 feet in height, and a mile distant from the river. On the W. side of the hill are 18 pyramids from 35 to 60 feet in height. Here are also the remains of several large Egyptian temples, one of them nearly 500 feet in length. These ruins are supposed to mark the southern limits of the empire of the Pharaohs, and the city to which they belonged was probably Napata, the capital of Tirhaka, the king of the Ethiopians, and also of those sovereigns of Ethiopia who are mentioned in the ancient history of Egypt. A short distance below Jebel-el-Birkel, on the right bank of the river, is the village of Merawe, nearly opposite to which is the point from which travellers up the Nile begin their march across the desert of Bahiouda to Shendy, and thus cut off the great upper bend of the river. After passing Merawe the Nile continues to the S. W. till it reaches lat. 18°, when it turns again to the N. In this part of its course it is about half a mile wide. The desert on both sides reaches to the banks, and there is little cultivable land except on the islands. The kingdom of Dongola, now subject to the pasha of Egypt, begins at this point, and reaches to the second cataract nearly 300 m. northward. This region is tolerably fertile, the banks of the river being no longer rocky, and the annual inundation diffusing itself over a large extent of land, abounding in fine pastures and producing a breed of excellent horses. A little above the third cataract, in lat. 19° 12′ N., is the island of Argo, which is 12 m. long, and contains a number of ruins, among them two overthrown colossal statues of gray granite in Ethiopian costume with Egyptian features. Below the third cataract, in lat. 20°, the Nile makes a large bend to the E.; and travellers usually take a straight line through the desert to Saleb on the left bank, where are found the ruins of a temple remarkable for the elegance of its architecture and its imposing and picturesque position on the line which separates the desert from the fertile land. A few miles below, the large island of Sais divides the river, which soon after contracts between granite rocks so closely that it is but a few hundred feet in width. The rocks hang over the shore and fill the river with shoals, causing so many eddies, rapids, and shallows, that navigation is practicable only at the time of highest flood, and is even then dangerous. About half way between the island of Sais and the second cataract, in lat. 21° 29′, is the village of Semneh on the left bank, where are the remains of a large temple of great antiquity; and on the opposite side is another of still larger dimensions and of equal antiquity. These buildings mark the site of a populous city, whose name has been lost from history. As the river approaches the second cataract in lat. 22°, the porphyritic and granitic rocks on its banks give place to sandstone. The second cataract, which was called by the ancients the great cataract, is, like all the others, formed by primitive rocks rising through the sandstone, in a succession of islands dividing the stream, which foams and rushes between them, with a roar which may be heard at the distance of more than a mile. It is rather a collection of rapids than a fall. A city once existed here, and the remains of three ancient temples are yet visible. From the second cataract to the frontier of Egypt, a distance of 220 m., there is a multitude of temples, some on the right, some on the left bank, the most remarkable of which are those of Aboo Sambool or Ipsambul, anciently Ibsciak, on the left bank, two days' journey below the cataract. (See ABOO SAMBOOL.) A few miles lower down, at Ibrim, the ancient Primis, are ruins of the same kind, of the age of Thothmes I. and Rhamses III. Just beyond Ibrim the channel of the river is compressed between a range of sandstone hills rising almost perpendicularly, so close to the shore that there is hardly room to pass between their bases and the water. A few miles below, at Derr, the capital of Lower Nubia, the river bends abruptly to the S. and then again to the N. All this region abounds in temples of Rhamses III., Thothmes III. and IV., and Amenoph II. Amada, two hours' sail below Derr, has a temple whose sculptures are of a high order of merit; and the traveller descending the river passes in rapid succession Wady Esseboua, the valley of Lions; Dakkeh, the site of a temple of Thoth; Pselcis, the furthest point to the S. at which any traces of Greek or Roman dominion have been found on monuments; Dandour, the site of a temple of the age of Augustus; and Kalabsche, the ancient Talmis, situated in lat. 23° 30′, directly under the tropic of Cancer, where there is a temple founded by Amenoph III., rebuilt by one of the Ptolemies, and repaired by Augustus, Caligula, and Trajan. The Nile in this part of its course is described by Mr. Bayard Taylor as "a river of the north under a southern sun. The mountains rise on either hand from the water's edge; piles of dark sandstone or porphyry rock, sometimes 1,000 feet in height, where a blade of grass never grew, every notch and jag on their crests, every fissure on their sides, revealed in an atmosphere so pure and crystalline that nothing but one of our cloudless mid-winter days can equal it. Their hue near at hand is a glaring brown; in the distance an intense violet. On the W. bank they are lower; and the sand of that vast desert, which stretches unbroken to the Atlantic, has heaped itself over their shoulders and poured long drifts and rills even to the water. In color it is a tawny gold, almost approaching a salmon tint, and its glow at sunrise almost equals that of the snow fields of the Alps. The arable land is a mere hem, a few yards in breadth on either side of the river. It supports a few scattering date palms, which are the principal dependence of the Nubians. . . . . This part of Nubia is inhabited by the Kenoos tribe, who speak a language of their own. They and their language are designated by the general name of Barabra, nearly equivalent to barbarians, by the Arabs. They are more stupid than the Egyptian fellahs, but their character for truth and honesty is superior." The rise of the Nile during the annual inundation is in some parts of this region as much as 30 feet, but the height of the banks is such that the adjacent land derives little benefit from the overflow. At the boundary between Nubia and Egypt is the island of Philæ, where the Nile is 3,000 feet broad. It is about a quarter of a mile long, and is covered with picturesque ruins of temples, almost entirely of the times of the Ptolemies and of the Roman emperors. Immediately below Philæ are the falls called the first cataract, the last in descending the river, which extend to Asswan, the ancient Syene, and to the island of Elephantiné. The ridge of granite by which they are caused crosses the river and extends into the desert on either side. The rocks are much more rugged than those of the second cataract, and rise to the height of 40 feet. There are three principal falls; at the steepest, which is about 30 feet wide, the descent is about 12 feet in 100. The entire descent in a space of 5 m. is 80 feet, and the whole constitutes a series of rapids rather than falls, and may be passed by boats when the water is high. From the quarries on the banks were derived the colossal statues, obelisks, and monoliths which are found throughout Egypt. The island of Elephantiné, just opposite to Syene, is fertile and covered with verdure. From Syene to the Mediterranean, a distance of 700 m., the Nile runs down a gentle declivity of about 600 feet. The valley through which it flows till it reaches the apex of the delta varies in breadth, and has an average of 7 m., the greatest width being 11 m. A short distance below Syene begins a district of sandstone, which extends nearly to lat. 25°. This part of the valley is narrow and barren. Near lat. 25° is Edfoo, the ancient Apollinopolis Magna, which stands on the right bank, and has two famous temples built by the Ptolemies, the largest of which is the best preserved of all the edifices of the kind in Egypt. At Esneh or Latopolis, on the W. bank, 30 m. westward, the valley of the river expands to the width of nearly 5 m. Here are the remains of a magnificent temple built by the Roman emperors. Still lower down the rocks of Jebelain or the "two mountains" approach so near each other on opposite sides, that the river occupies nearly the whole valley. Here the sandstone disappears, and limestone hills succeed, which border the river till it reaches the delta. There is consequently from this point a wider interval of fertile land, especially on the W. side. Fifty miles below Edfoo stand the magnificent ruins of Thebes, the ancient capital of Upper Egypt.

Here the river is 1¼ m. wide, and is divided by islands. On the right bank are the modern villages of Luxor and Karnak, on the left Medinet Aboo and Gourna. From Thebes the traveller descending the river passes numerous ruins, at Medamot, at Koos or Apollinopolis Parva, and at Coptos on the right bank; and on the left bank, 38 m. below Thebes, reaches Dendera, the ancient Tentyra, where are seen the majestic remains of the temple of Athor, one of the most impressive of Egyptian monuments. Not far below this the river bends to the W., and at How or Diospolis Parva on the left bank begins the canal or ancient branch of the Nile, called the Bahr Jusuf or river of Joseph, which flows between the river and the Lybian hills to the entrance of the Fayoom. Not far distant is Abydos or This, one of the most ancient cities of Egypt, the birthplace of Menes, the first of the Pharaohs. Beyond this are Chemnis or Panopolis on the E. bank, Syoot, the ancient Lycopolis, on the W. bank, and a little lower down on both banks the grottos of Manfalout, the sepulchres of embalmed dogs, cats, and crocodiles. Still lower are the ruins of Hermopolis Magna on the W. side, and the remains of Antinoë built by Hadrian in the Roman style. North of Antinoë, on the E. bank, are the famous grottos of Beni-Hassan, about 30 in number, excavated by the kings of the 18th dynasty, and containing paintings of scenes in the civil and domestic life of the ancient Egyptians, from which modern Egyptologists have derived most of our knowledge of the manners and customs of that people. From this point the course of the river presents no remarkable feature till it reaches Beni-Sooef in lat. 29°, where the Libyan chain of hills begins to retire from the river, bends toward the N. W., and again returning toward the river encloses the province of Fayoom, in which were the lake of Mœris, the labyrinth, and the city of Crocodilopolis. The next objects of interest in descending the stream are the pyramids of Dashoor and of Saccara, and finally the great pyramids of Gizeh, the royal sepulchres of ancient Memphis. This metropolis, whose remains have been lately discovered by M. Mariette, stood on the W. bank. A few miles lower down, on the E. bank, is Cairo, the present capital. A little above Cairo the double chain of hills between which the Nile has so long flowed terminates, those on the E. side turning off toward the head of the Red sea, and those on the opposite side returning toward the N. W. From this point the Nile expands, and its current slackens, and soon begins to flow sluggishly in separate branches. Twelve miles below Cairo is the apex of the delta, the point of separation, which in ancient times was 6 or 7 m. higher up. From here to the sea the delta spreads for 90 m., a broad and perfectly level alluvial plain, without a hill, rock, or natural elevation of any kind. Anciently the Nile traversed the delta by 7 branches, of which only 3 appear to have been of much size, the Pelusiac or eastern arm, the Canopic or western, and the Sebennytic or middle arm. The Pelusiac branch is now dry. On the E. side of it, not far from the apex of the delta, was Heliopolis, the On of Scripture, of whose ruins only an obelisk remains. Twenty miles lower down was Bubastis; and still lower, near the sea, though its remains are now several miles inland, was Pelusium, from which the mouth derived its name. The ancient Sebennytic branch had its mouth where the lake of Bourlos now lies, but the greater part of its course is represented by the more easterly of the two present mouths of the Nile, that of Damietta. The Canopic branch is represented by the first part of the present Rosetta branch as far as lat. 31°, whence it turned to the W. and entered the sea near the bay of Aboukir. The two mouths by which the river now enters the Mediterranean are about 80 m. apart, and are in lat. 30° 31′ N. The W. or Rosetta branch is the usual channel of communication between Alexandria and Cairo, and is navigated by small steamers at regular intervals; it is 1,800 feet broad, and has in the dry season a depth of about 5 feet. The Damietta branch is 900 feet wide, and its depth when the river is lowest is about 8 feet.—In the ordinary state of its waters the Nile has not depth sufficient for vessels of more than 60 tons burden, but during the height of the inundation the depth of water is 40 feet, and large vessels can ascend to Cairo. The river begins to rise in Egypt in the latter part of June, and reaches its greatest height between Sept. 20 and 30, when it is usually at Cairo 24 feet above the low water level, and at Thebes 36 feet. About the middle of October it begins to fall, and is at the lowest about the middle of May. The rise sometimes reaches 30 feet, and the overflow then does great damage; on the other hand, when it falls short of 18 feet, the harvests fail, and Egypt experiences a famine. Of the 66 inundations between 1735 and 1801, 11 were very high, 30 good, 16 feeble, and 9 insufficient. The water of the river is charged with mud, which it deposits during the inundation over the cultivated land of Egypt to an average depth of not more than the 20th part of an inch each year. Notwithstanding its turbidness, the water is sweet and wholesome, and is freely drunk by the people, among whom the saying is proverbial that he who has drunk of the Nile will always long to return and drink of it again.—On the island of Rhoddah, near Cairo, is the celebrated nilometer for indicating the height of the Nile during the annual inundation. It consists of a square well or chamber, in the centre of which is a graduated pillar, divided into cubits of about 22 inches each. A nilometer existed at Memphis in the times of the Pharaohs, and during the reigns of the Ptolemies there was one at Eilethyia, and another at Elephantiné in the reigns of the early Roman emperors. The first nilometer built after the Arab conquest was erected at Helwan about A. D. 700. The present one in the island of Rhoddah is attributed to the caliph Amin, who reigned from 813 to 833. During the inundation 4 criers proclaim every morning in the streets of Cairo the height to which the water has risen. When it has reached 18 cubits the canals are opened and it is allowed to flow over the land.—Just below the apex of the delta is the *barrage* or great dam, commenced by the French engineer Linant and still unfinished. It is intended to hold back the waters and keep them in reserve, so that by letting them out at proper seasons two inundations may be produced in a year. It will consist when completed of 62 arches spanning each of the two channels into which the Nile is here divided (the Damietta and Rosetta branches), beside a central arch 90 feet in width, flanked by lofty stone towers. The point of the delta between the two branches is protected by a curtain of solid masonry, and the abutments which join it are fortified by towers 60 or 70 feet high. The piers have curved breakwaters on the upper side. The material is brick faced with stone. During low water it is intended to close the side arches, and thus gain water enough to fill all the irrigating canals. A French company for the establishment of a line of steam tow-boats on the Nile was approved by the viceroy, Oct. 9, 1854.—The Nile abounds with fish, among which are large eels, white trout, and a large species of salmon. The overflow of the White Nile brings down vast quantities of fish, probably from some great lake. Crocodiles and hippopotami abound in the upper part of the river, but the hippopotamus is seldom found below the 2d cataract, and the crocodile has been exterminated from Lower Egypt.

NILES, a town of Berrien co., Mich., on the right bank of the St. Joseph river, near the mouth of the Dowagiac, and on the Michigan central railroad, 192 m. W. by S. from Detroit; pop. in 1859 estimated at 5,000. It is pleasantly situated in the centre of a rich agricultural region, and is the seat of a branch of the state university. It contains also a number of mills and manufacturing establishments, 2 weekly newspaper offices, and 6 churches, viz.: Baptist, Congregational, Episcopal, Methodist, Presbyterian, and Roman Catholic.

NILES, Hezekiah, an American journalist, born Oct. 10, 1777, died in Wilmington, Del., April 2, 1839. He is chiefly known as the founder in 1811 of "Niles's Register," a weekly journal, published at Baltimore, of which he was the editor till Aug. 1836. The "Register" was republished by him in 32 volumes, extending from 1812 to 1827, and was continued by his son W. O. Niles and others till June 27, 1849, making 51 volumes in all.

NILES, John Milton, an American author and statesman, born in Windsor, Conn., Aug. 20, 1787, died in Hartford, Conn., May 31, 1856. Receiving only a common school education, until his 20th year he was principally engaged in labor upon the farm, cultivated by himself and an elder brother. At that age he applied himself to study, and afterward entered a law office. While yet a student he warmly espoused the policy of President Madison, in opposition to the general sentiment which then prevailed in Connecticut. Not being immediately successful in his profession, he visited in 1815 Vermont, New York, and Pennsylvania, with some idea of finding a new home, but returned to Connecticut undecided. In 1817, with the coöperation of others, he established the "Hartford Times," of which he was principal editor for several years, and to which he contributed for 30 years. He was appointed in 1821 by the general assembly one of the associate judges for the county court of Hartford, and in 1826 was elected representative from the town of Hartford to the general assembly. He was nominated for senator in 1827, but was unsuccessful on account of his known partiality for Gen. Jackson. He was appointed postmaster of Hartford in 1829, but resigned on receiving the executive appointment of U. S. senator, a post made vacant by the death of Nathan Smith, which he retained until 1839. In 1839 and 1840 he was the democratic candidate for governor of Connecticut, and in the latter year he became postmaster-general under President Van Buren. He was again elected to the U. S. senate in 1842; and on the expiration of his term in 1849 he retired from official life. He edited for republication in 1816 a large English work, "The Independent Whig," and compiled in conjunction with Dr. John C. Pease, his brother-in-law, a gazetteer of Connecticut and Rhode Island, published in 1819. He was also the author of a "Life of Commodore Oliver H. Perry" (Hartford, 1820); "History of South America and Mexico, and a View of Texas" (Hartford, 1839); and a number of pamphlets containing orations, addresses, &c., upon a great variety of subjects. By his will he bequeathed $70,000 in trust to the city of Hartford, as a charity fund, the annual income of which was to be distributed among the poor.

NILES, Nathaniel, an American clergyman, inventor, and politician, born in South Kingston, R. I., April 3, 1741, died Oct. 31, 1828. He was graduated at Princeton college in 1766, afterward studied medicine and law, and taught for a time in New York city. Under Dr. Bellamy he studied theology and was licensed to preach, but refused to settle over any church, although he preached in several places in New England. Becoming a resident of Norwich, Conn., he invented a process of making wire from bar iron by water power, and connected it with a wool card manufactory. After the revolution he removed to Orange co., Vt., and filled subsequently several public offices in that state, was speaker of the house of representatives in 1784, judge of the supreme court for several years, a representative in congress from 1791 to 1795, one of the censors for the revision of the state constitution, and 6 times presidential elector. He continued to preach, however, as long as his health permitted. He published four "Discourses on Secret Prayer" (1773); two "Discourses on Confession of Sin and Forgiveness;" two sermons on "The Perfection of God, the Fountain of Good" (1774); a sermon on vain amusements; and a "Letter to a Friend concerning the doctrine that impenitent sinners have the natural power to make to themselves new hearts" (1809). He also wrote a "History of the Indian Wars," published in the "Massachusetts Historical Collections," and the "American Hero," a Sapphic ode, once very popular in Norwich, and still occasionally sung.

NIMEGUEN, Nymwegen, or Nijmegen (anc. *Noviomagus*), a strongly fortified frontier town of Holland, in the province of Gelderland, on the left bank of the Waal, about 10 m. from Arnhem and Cleves; pop. about 21,000. It is built on several hills, on which in ancient times the Romans had formed a camp to guard their Batavian possessions against the Germans. It is a well built town, though the streets are narrow. The most remarkable public building is the town hall, containing a few Roman antiquities, the swords of Egmont and Horn, statues of German emperors, and portraits of the ambassadors connected with the treaty of peace signed there in 1678, between Spain, France, and Holland, followed in 1679 by that between the two former countries and Germany and Sweden. On the principal hill (*Hönderberg*) are the ruins of the castle of Falkenhof, said to have been built by Charlemagne; and not far from it is the fine café and promenade of the Belvedere, a lofty structure, originally built under the direction of the duke of Alva.—Nimeguen was formerly a Hanse town. After joining in 1579 the Utrecht league of the United Provinces of the Netherlands, it was taken by the Spaniards in 1582, and recoverd by Maurice of Orange in 1585. In 1672 it was taken by Turenne; but in 1702 it resisted another attack of the French.

NÎMES, or Nismes (anc. *Nemausus*), a city in the S. E. of France, capital of the department of Gard, 30½ m. by railway N. E. from Montpellier and 79 m. N. W. from Marseilles; pop. in 1856, 54,293. The city proper is small and irregularly laid out, with narrow streets and ill-built houses; but its 3 suburbs, one of which, called the Cours-Neuf, is larger than the city itself, present a finer aspect, having wide, straight avenues, fine public walks, and handsome buildings. The remains of antiquity which Nîmes contains are surpassed by those of no other European city except Rome. The *maison carrée*, so called from its rectangular form, is a beautiful Corinthian temple nearly in the centre of the city, and presents a fine specimen of Roman architecture. It stands on a stylobate, and is approached by 15 steps; the platform is 82½ feet long and 40½ feet wide, and the building and platform together are 58½ feet high. It is surrounded by 30 columns, 10 of which are detached and form the portico. It suffered greatly during the middle ages, and it is only since 1789 that it has been taken care of, restored, and surrounded by an iron railing. In 1823 it was converted into a museum of paintings and antiquities, called the *musée Marie Thérèse*. The amphitheatre, or *les arènes*, is the most perfect, if not the largest structure of its kind extant. Its height outside is from 68 to 104 feet, and its external circumference 1,174½ feet. It has from 32 to 35 ranges of seats, and was capable of accommodating from 17,000 to 23,000 spectators. It was used as a fortress by the Visigoths and the Saracens, when attacked by the Franks; during the following centuries it was also occupied as a stronghold. No fewer than 2,000 persons had established their abode within the walls of this building, when in 1809 it was cleared by order of the prefect; and it has since been protected against encroachments. The *tour magne* (*turris magna*) is the remnant of a tower which flanked the ancient walls. The boulevards now occupy the site of the ramparts, but portions of them are still extant in the *porte d'Auguste* and *porte de France*, two Roman gates, the former of which is ornamented with sculptures. To these monuments must be added a ruined *nymphæum*, a fane dedicated to the nymphs, which communicated with a neighboring bath for women, the remains of which have been mistaken for those of a temple of Diana. The magnificent aqueduct, known as the *pont du Gard*, is in the vicinity of Nîmes. (See Gard, Pont du.) Among the edifices of a later period are the cathedral, begun in the 11th century, but constructed chiefly in the 16th and 17th, occupying the site of a temple of Apollo; the church of St. Paul; the new palace of justice; the general hospital; the *hôtel Dieu*, rebuilt in 1830; the public library; the central house of detention, which is the citadel built by Vauban over the remains of the old Fort Rohan erected in 1629 by the Calvinists; and the fine monumental fountain by Pradier, erected in 1851, on the esplanade. The public garden, where is still to be seen the fountain that furnished the Roman baths with water, and the beautiful promenade known as the *cours Feuchères*, must not be forgotten.—Nîmes is the seat of a bishop, and has an imperial court, tribunals of primary jurisdiction and commerce, a departmental academy, several learned institutions, a lyceum or college, a normal school, a theological seminary, schools of drawing, chemistry and physics, geometry and mechanics as applied to the arts, a society of medicine, a Bible society, and a cabinet of natural history. In point of industry and commerce it holds a distinguished rank; it is the great southern mart for raw and manufactured silk. Its manufactures are principally silk shawls and hosiery; mixed silk, cotton, and woollen stuffs; blonde lace and tulles, galloons, ribbons, and carpets. There are several large dyeing and printing establishments, vinegar factories, and distilleries. Its trade is mostly in wine, brandies, vinegar, essences, castor and almond oils, oleaginous and leguminous seeds, and medicinal and tinctorial plants. A *conseil de prud'hommes* and a chamber of commerce watch over the interests of workmen and manufacturers.—Nimes was occupied by the Romans in 121 B. C. It was already one of the most important cities of Gaul and the capital of the Volcæ Arecomici. Augustus, Tiberius, Trajan, Hadrian, Antoninus, and Diocletian contributed to its embellishment. But, pillaged by the Vandals, occupied by the Visigoths from 465 to 507, and then by the Franks, taken by the Saracens, from whom it was wrested by Charles Martel in 737, visited by the Norman pirates, ill treated by its feudal lords, it dwindled away, until in the 14th century its population scarcely amounted to 400. It revived, however, and Francis I. assisted in its restoration. Most of its new inhabitants being Calvinists, it suffered during the religious war of the 16th century, and was severely treated by Louis XIII. and Louis XIV. It was also involved in bloody conflicts in 1791 and 1815.

NIMROD, a personage mentioned in Gen. x. 8, 9, 10, in the following manner: "And Cush begat Nimrod: he began to be a mighty one in the earth. He was a mighty hunter before the Lord; wherefore it is said, Even as Nimrod the mighty hunter before the Lord. And the beginning of his kingdom was Babel, and Erech and Accad and Calneh in the land of Shinar." He is mentioned in the Bible only twice afterward—in 1 Chron. i. 10: "And Cush begat Nimrod: he began to be mighty upon the earth;" and in Micah v. 6: "And they shall waste the land of Assyria with the sword, and the land of Nimrod in the entrances thereof." Cush, the father of Nimrod, was the son of Ham and the grandson of Noah. The name Nimrod in Hebrew implies rebellion and apostasy, and may be translated "the impious rebel." The commentators upon the Bible are generally of opinion that Nimrod was a man of great bodily strength and courage, who first became distinguished as a slayer of wild beasts, and afterward as a military chieftain who was the first conqueror and despot, and the founder of government by force instead of by consent, as in the patriarchal rule which he overthrew and supplanted. Some have endeavored to identify him with the Babylonian Belus, others with the Assyrian Ninus. Sir Henry Rawlinson, the latest investigator of Babylonian antiquities, is of opinion that by Nimrod is probably meant the first dynasty that reigned in the region watered by the Tigris and Euphrates. It appears from the monuments that the cities which in Genesis are said to have formed the kingdom of Nimrod were founded by two early kings named Urukh and Ilgi. According to Berosus, this dynasty began in 2234 and ended in 1976 B. C.; and the dates obtained from the inscriptions are in agreement with this calculation. In Arabic history and tradition the seat of Nimrod's empire is placed at Cutha, about 12 miles from Babylon. The Arab tribes of Mesopotamia have many traditions about him, and have given his name to many places, as for instance to the Birs Nimroud, or Nimrod's tower, at Babylon, and to the great mound Nimroud on the site of Nineveh.

NIMROUD, BIRS. See BELUS, TEMPLE OF.

NINEVEH (Gr. Νίνος; Lat. *Ninus*; Assyrian, *Ninua*), an ancient city of Asia, the capital of the Assyrian empire, situated on the E. bank of the Tigris, opposite the present city of Mosul, and about 220 m. N. N. W. from Bagdad. The earliest mention of Nineveh that has come down to us is in the Bible, Gen. x. 11, 12, where it is said that out of the land of Shinar "went forth Asshur and builded Nineveh and the city Rehoboth and Calah, and Resen between Nineveh and Calah." It is next mentioned about 720 B. C. by the prophet Nahum, who denounces "woe to the bloody city! it is all full of lies and robbery," and predicts its speedy overthrow; at the same time alluding to its great riches, its strongholds, its merchants "multiplied above the stars of heaven," and its mighty princes and captains. Isaiah (xxxvii. 37) speaks of Sennacherib king of Assyria as dwelling at Nineveh about 710 B. C.; and Zephaniah (ii. 13) prophesies that the Lord "will make Nineveh a desolation and dry like a wilderness." But the only mention of it in the Scriptures which contains any details is in the book of Jonah. That prophet was commanded to "go to Nineveh, that great city, and cry against it. . . . . Now Nineveh was an exceeding great city of three days' journey, ... wherein are more than six score thousand persons that cannot discern between their right hand and their left hand." Much difference of opinion exists among commentators as to the exact meaning of the phrase, a "city of three days' journey," a day's journey being commonly reckoned at 20 miles, and three days' at 60 miles. By some it has been supposed to refer to the circumference; but as it is expressly stated that Jonah "began to enter into the city a day's journey," it seems evident that the expression was intended to apply to the diameter, for otherwise the prophet in a day's journey, instead of merely beginning to enter the city, would have traversed its entire length or breadth. The extent of a day's journey, as the phrase is here used, may have been much less than 20 miles, or the expression may be merely figurative and intended to indicate loosely the great size of the city. The statement that Nineveh contained 120,000 persons unable to "discern between their right hand and their left hand" has been construed to mean that there were that number of infants or children under 5 years of age, which, according to the usual calculation, would have made the entire population 600,000. But this is only a conjecture, as the real meaning of the passage, as of that which refers to the size of the city, is still a matter of speculation. All that can be certainly inferred from the biblical narrative is that Nineveh was very large and populous. The earliest mention of the city by any extant classical writer is in Herodotus, i. 193, who speaks of the Tigris as "the river upon which the city of Nineveh formerly stood," the place having been destroyed about 200 years before. Strabo mentions it as a city larger even than Babylon. Diodorus, copying Ctesias, places it on the Euphrates; though in an extract from Ctesias preserved in a fragment of Nicolaus Damascenus, it is properly stated to be on the Tigris. The error has probably crept into the text of the historian by the carelessness of some transcriber. Diodorus, following Ctesias, describes the city as forming a quadrangle of 150 stadia by 90, the circumference being thus 480 stadia or about 60 miles. The city was overthrown and its empire merged in that of Babylon, according to Sir Henry Rawlinson, in 625 B. C.; and so completely had it disappeared that Xenophon, though in 401 B. C. he led the 10,000 Greeks over the ground on which it had stood, does not even mention its name; and though 70 years later Alexander fought the great battle of Arbela in the vicinity, none of his historians allude to the ruins of the city. Huge mounds, apparently of mere earth and rubbish, covered its site, the largest of which are known to the inhabitants of Mosul and its vicinity at the present day as the mounds of Nimroud or Nimrod, of Kouyunjik, of Selamiyah, and of Nebbi Yunus or the tomb of Jonah, so called from the current belief among the people that the sepulchre of the prophet is on its summit, a tradition which probably originated in the former existence on the spot of a Christian church dedicated to Jonah. Kouyunjik is directly opposite Mosul, and about a mile from the Tigris. It measures 866 yards by 500. Nebbi Yunus is about a mile S. E. of Kouyunjik, and measures 566 by 400 yards. These two mounds are enclosed by the remains of a wall, the entire length of which was nearly 8 m., and which surrounded an irregular quadrangular space 3 m. in length with an average breadth of about a mile. Nimroud is about 20 m. S. of Kouyunjik, near the junction of the great Zab with the Tigris. Selamiyah is 3 m. to the N. of Nimroud. About 15 m. N. E. of Nimroud is the mound called Karamles; and 12 m. N. E. of Mosul is the mound of Khorsabad, consisting of two parts, an upper, about 650 feet square and 30 feet high, and a lower part connected with it, about 1,350 feet by 300.—The first accurate description and plan of these ruins was given by Claudius James Rich, who was for several years the English East India company's political agent at Bagdad. He made in 1820 a survey, which was published after his death. From the neighboring inhabitants he learned that not long before his visit sculptured figures of men and animals had been dug out of one of the mounds, and had been destroyed as idols. He collected, however, a few specimens of pottery and bricks inscribed with cuneiform characters. In 1843 M. Paul Émile Botta, French consul at Mosul, after having examined the mound of Kouyunjik without making discoveries of much importance, turned his attention to the mound of Khorsabad, where he soon laid bare the ruins of a magnificent palace which had evidently been destroyed by fire. He found among the remains a series of apartments panelled with slabs of coarse gray alabaster, on which were sculptured in bass-relief figures of men and animals, with inscriptions in the cuneiform or arrow-headed character. In Nov. 1845, Austen Henry Layard, an English traveller, began excavations at Nimroud, which were continued till April, 1847, with great success. He discovered immense quantities of sculptures, inscriptions, pottery, and antiquities of all sorts, by means of which more light has been thrown on the history and civilization of the Assyrians than by all the accounts transmitted to us by the writers of antiquity. Excavations with like results were also made in the mounds of Kouyunjik and Nebbi Yunus. In the latter part of 1849, under the direction and at the expense of the trustees of the British museum, Mr. Layard resumed his explorations, and continued them for about a year.—From the researches of Messrs. Botta, Layard, and other investigators, it appears that the great mounds, or rather groups of mounds, Kouyunjik, Nimroud, Selamiyah, and Khorsabad, were fortified places, surrounded by walls enclosing an area large enough, in each case, for a considerable city. Recent surveys have shown that Kouyunjik, Khorsabad, Nimroud, and Karamles occupy the 4 corners of a square, the area of which is very nearly of the extent assigned to Nineveh by the Greek writers. Sir Henry Rawlinson is of opinion that these places were all distinct cities, and that the mound of Nebbi Yunus marks the site of Nineveh, which he thinks was only about 9 m. in circumference. He admits, however, that in the time of Jonah the common name of Nineveh was applied to the whole group of cities. Mr. Layard, on the contrary, considers Kouyunjik the site of the most ancient city, which gradually expanded until it enclosed within its walls an area 60 m. in circumference, including several great fortified palaces which continued to bear distinct local appellations, in the same manner as Westminster, Southwark, and other parts of London are still known by their individual names. This great space, however, was not wholly covered with houses, but comprised, as is the case in many oriental cities at the present day, extensive gardens and arable and pasture land. Jonah speaks of much cattle within the walls; and as Babylon, according to Diodorus and Quintus Curtius, contained vacant land enough to supply corn for the population during a siege, it is probable that Nineveh was built in a similar manner. That part of the city of which the mounds of Kouyunjik and Nebbi Yunus are the remains seems to have been, at least at one period, the most important and the most strongly fortified. A deep moat defended the N. side; the western walls were washed by the Tigris, which now flows in a different channel nearly a mile distant; a moat and wall defended the S. side; and on the E. side, which was the most exposed, the strongest artificial defences were raised, consisting of a moat 200 feet broad and a wall 100 feet high. It is probably to this portion of the fortifications that the descriptions of the Greek writers properly refer, though with natural exaggeration they applied the same colossal scale to the entire fortifications of the metropolis.—The most ancient edifice discovered by Mr. Layard is that termed by him the north-west palace, at the N. W. corner of the mound of Nimroud. It was founded or rebuilt on the site of a still older palace by Asshur-dan-pal, who is supposed to have been the warlike Sardanapalus of the Greeks, and who must be distinguished from the effeminate king of the same name. He appears to have reigned about 950 B. C. This palace was nearly square, about 360 feet in length and 300 in breadth. A second palace in the centre of the same mound was built by his son Shalmanubar, and rebuilt by a succeeding monarch, Iva-lush III., who also built a third palace in the immediate vicinity. Iva-lush III. is the Pul of the Scriptures, and his queen is supposed to have been named Semiramis, though not the famous heroine of the Greek writers. The palace discovered at Khorsabad by M. Botta was built about 725 B. C. by a king who is called Sargon in Isa. xx. At Kouyunjik Mr. Layard disinterred a great palace founded about 700 B. C. by Sennacherib, on whose monuments have been discovered inscriptions containing the name of Hezekiah and a record of the invasion of Judæa and siege of Lachish, when in the 14th year of King Hezekiah "Sennacherib king of Assyria came up against all the fenced cities of Judah and took them." (2 Kings xviii. 13.) These palaces were all built upon enormous platforms raised about 40 feet above the level of the plain, either by heaping up earth and rubbish or by masonry of sun-dried bricks. The platforms were faced with stone, and were ascended by broad flights of steps. The palaces themselves were constructed principally of sun-dried bricks, though kiln-burnt bricks were used for the solider parts, and a coarse alabaster quarried near the city was used for ornament. The walls of these buildings were generally about 15 feet thick, and were lined with sculptured alabaster slabs from 8 to 10 feet high, from 3 to 4 broad, and about 18 inches thick. The apartments were high, and the spaces above the slabs were plastered and painted or were faced with bricks, coated with enamel of elegant designs and brilliant colors. Ivory, bronze, and cedar from Mt. Lebanon were also used for decoration, which was heightened by gilding and painting. The principle of the arch was understood by the Assyrians, and the arched doorways to the principal apartments were guarded by colossal figures of lions or bulls with human heads and the wings of an eagle. On these figures were historical inscriptions recording the exploits of the king by whom they were erected. In some of the palaces that have been discovered the panelling of sculptured slabs is nearly a mile in length. The principal and favorite subjects of these representations are war abroad and state at home. There are separate sculptured histories of each campaign of the king, and delineations of the taking of all the considerable cities that resisted him. These sieges and the treatment of the captives, which was barbarous in the extreme, as they were sometimes flayed alive, and representations of the king or his officers receiving tribute or homage from the conquered people, form the most common scenes of the bass-reliefs. Many of the sculptures, however, are of a purely religious nature; some are wholly occupied by scenes of the chase; some are actually landscape paintings; and many represent thrones, chariots, or domestic furniture and utensils. No Assyrian women ever appear in the sculptures, though women are sometimes represented as captives or as begging for mercy from the walls of a falling city. As only the lower part of the walls of the palaces of Nineveh have been found, it is uncertain what was the nature and arrangement of the upper part. The absence of windows makes it difficult to comprehend how the apartments could have been lighted. Mr. Layard at first supposed them to have consisted of only a single story with apertures in the ceiling to admit light; but he now is understood to incline to a plausible theory advanced with great ability and ingenuity by Mr. Fergusson, who maintains that there was an upper story supported by columns and open at the sides to admit light to the rooms below, from which the sunshine could be excluded at pleasure by means of curtains. This open upper story was used in fine weather, and as a balcony from which the king could show himself to his subjects or review his troops. The columns which supported its roof stood some of them on the floor of the lower story, and other shorter ones on the walls of the lower story, whose immense thickness is thus accounted for. These edifices, though not equalling those of the Greeks in elegance and artistic taste, nor those of the Egyptians in solid magnificence and strength, must have been exceedingly gorgeous and beautiful structures. They were in part temples as well as palaces, the king being not only political chief but high priest of the nation, as was the case at one period in Egypt. "The interior of the Assyrian palace," says Mr. Layard, "must have been as magnificent as imposing. I have led the reader through its ruins, and he may judge of the impression its halls were calculated to make upon the stranger who, in the days of old, entered for the first time the abode of the Assyrian kings. He was ushered in through the portal guarded by the colossal lions or bulls of white alabaster. In the first hall he found himself surrounded by the sculptured records of the empire. Battles, sieges, triumphs, the exploits of the chase, the ceremonies of religion, were portrayed on the walls, sculptured in alabaster and painted in gorgeous colors. Under each picture were engraved, in characters filled up with bright copper, inscriptions describing the scenes represented. Above the sculptures were painted other events—the king, attended by his eunuchs and warriors, receiving his prisoners, entering into alliances with other monarchs, or performing some sacred duty. These representations were enclosed in colored borders of elaborate and elegant design. The emblematic tree, winged bulls, and monstrous animals were conspicuous among the ornaments. At the upper end of the hall was the colossal figure of the king in adoration before the supreme deity, or receiving from his eunuch the holy cup. He was attended by warriors bearing his arms, and by the priests or presiding divinities. His robes and those of his followers were adorned with groups of figures, animals, and flowers, all painted with brilliant colors. The stranger trod upon alabaster slabs, each bearing an inscription, recording the titles, genealogy, and achievements of the great king. Several doorways, formed by gigantic winged lions or bulls, or by the figures of guardian deities, led into other apartments, which again opened into more distant halls. In each were new sculptures. On the walls of some were processions of colossal figures—armed men and eunuchs following the king, warriors laden with spoil, leading prisoners or bearing presents and offerings to the gods. On the walls of others were portrayed the winged priests, or presiding divinities standing before the sacred trees. These edifices were great national monuments, upon the walls of which were represented in sculpture or inscribed in alphabetic characters the chronicles of the empire. He who entered them might thus read the history and learn the glory and triumphs of the nation. They served at the same time to bring continually to the remembrance of those who assembled within them on festive occasions, or for the celebration of religious ceremonies, the deeds of their ancestors and the power and majesty of their gods." The palaces of Nineveh appear generally to have been destroyed by fire, which however could not injure the incombustible and massive walls of the lower part of the first story. These with their sculptures were probably at once buried by the falling in of the upper stories and of the higher part of their own structure, and the ruins were in time wholly concealed by the accumulation of rubbish from the villages subsequently built on them and by the mould of decaying vegetation, through the course of 3,000 years.—Though the most ancient edifice yet discovered, the north-west palace at Nimroud, dates only from the 10th century B. C., there can be no doubt that Nineveh was founded several centuries before, and probably as early as 22 centuries B. C. Its name is mentioned in Genesis and is found on Egyptian monuments 14 centuries B. C. For a long period Nineveh seems to have been under the dominion of Babylon. Sir Henry Rawlinson is of opinion that about 1273 B. C. Assyria became independent and the seat of a great empire, whose capital however was at Asshur, now Kileh-Shergat, on the right bank of the Tigris, 60 m. S. of Nineveh. Ninus and Semiramis he regards as mythical personages, not belonging at all to Assyrian tradition, but inventions of the Greek writers. The Babylonian historians, according to Abydenus, ignored altogether the existence of any such monarchs. The earliest known king of Assyria was Bellush, who was succeeded by Pudil, Iva-lush, and Shalmabar, whose reigns were probably between 1273 and 1200 B. C. A dynasty of 6 kings succeeded, reigning till 1050 B. C., the crown descending from father to son. Their names are recorded on a cylinder found at Kileh-Shergat, and, as Rawlinson proposes to read them, are Nin-pala-kura, Asshur-dapal-il, Mutaggil-nebu, Asshur-rish-ili, Tiglath-Pileser I., and Asshur-bani-pal I. The true reading of the first of these names is very uncertain, but the inscription declares that he was the king who first organized Assyria. Asshur-rish-ili, the 4th of the dynasty, is called "the powerful king, the subduer of foreign countries, he who reduced all the lands of the Magian world;" from which it appears that he was a great conqueror, like his son Tiglath-Pileser I., who subdued Cappadocia, Syria, and parts of Media and Armenia. It is not certain who succeeded Asshur-bani-pal I., but the next king whose name is ascertained was Asshur-adan-akhi, who is supposed to have ascended the throne about 1050 B. C., and to have been a contemporary of David. He was succeeded by Asshur-danin-il, Iva-lush II., Tiglathi-Nin, and Asshur-dani-pal or Sardanapalus, who according to Rawlinson transferred the seat of government from Kileh-Shergat to Nineveh. This monarch was a great conqueror, and carried his arms far and wide through western Asia, from Babylonia and Chaldea on the one side to Syria and the Mediterranean on the other. He was succeeded by his son Shalmanubar or Temenbar, who, after a warlike and victorious reign of more than 30 years, between 900 and 850 B. C., was succeeded by his son Shamasiva, who was followed by his son Iva-lush III., who is supposed to be the Pul of the Scriptures, and to have reigned from 800 to 747 B. C. With him his dynasty ended, and Tiglath-Pileser II. ascended the throne, probably by usurpation. His successors were Shalmaneser, Sargon, a usurper, and his son Sennacherib, who rebuilt and enlarged Nineveh, which had fallen into decay. He reigned upward of 22 years, and conquered Babylon and Jerusalem. In a second expedition against the latter city and against Egypt, "the angel of the Lord went out and smote in the camp of the Assyrians an hundred fourscore and five thousand." His reign ended by his murder by two of his sons at Nineveh, one of whom, Asshur-akh-iddina or Esarhaddon, ascended the throne and reigned at least 13 years. His buildings exceed in magnificence those of any former Assyrian king, and his conquests extended not only over all western Asia, but into Egypt, and even into Ethiopia. In the latter part of his reign, however, Babylon seems to have rebelled and to have established its independence. Esarhaddon was succeeded by his son Asshur-bani-pal II., who about 640 B. C. transmitted the decaying empire to Asshur-emit-ili, the last king of whom any records have been as yet discovered. Either this monarch or a brother and successor Saracus was the last sovereign of Nineveh, and identical with the famous voluptuary Sardanapalus, of whom the Greek writers have given the imaginary history on which Lord Byron founded his tragedy. All that is really known of his history is that he was besieged in Nineveh by the revolted Medes and Babylonians, and in 625 B. C. an extraordinary flood of the Tigris swept away a portion of the city wall, upon which the king set fire to his palace and destroyed himself. The conquerors plundered and burned the rest of the city, which was never rebuilt. The total duration of the kingdom of Assyria seems to have been about 650 years; and for at least 5 centuries it was a great and powerful nation, dominant over western Asia, and comprising among its provinces or vassal states Susiana, Chaldea, Babylonia, Media, Armenia, Mesopotamia, Cappadocia, Cilicia, Syria, Phœnicia, Palestine, Idumæa, and for a time lower Egypt and the island of Cyprus.—The letters and literature of the Assyrians seem to have been derived originally from Babylon, and were apparently not much cultivated on a native basis, science and learning having been confined to a priest class which did not aim at progress. In art and manufactures the people had made great advances. In architecture, and to a less degree in sculpture and painting, they had attained a skill which, considering the period in which they lived, is truly admirable. Their art has every appearance of thorough and entire nationality, and shows in its development not only remarkable grandeur, dignity, and strength, but a growing grace and delicacy of execution which indicates that it was progressive and not stationary like that of the Egyptians. The vases, jars, bronzes, glass bottles, carved ivory and mother-of-pearl ornaments, engraved gems, bells, dishes, ear rings, arms, and working implements which have been found among the ruins of Nineveh, are almost invariably of elegant form, and indicate considerable knowledge of metallurgy and other arts, as well as a refined taste. They anticipated inventions which till lately were believed to be comparatively modern, such as transparent glass, the magnifying lens, the principle of the arch, the construction of aqueducts and drains, and the arts of inlaying, enamelling, and overlaying with metals, and of cutting gems with the greatest skill and finish. "Their civilization," says Rawlinson, "equalled that of almost any ancient country, and did not fall immeasurably behind the boasted achievements of the moderns. With much that was barbaric still attaching to them, with a rude and inartificial government, savage passions, a debasing religion, and a general tendency to materialism, they were, toward the close of their empire, in all the arts and appliances of life, very nearly on a par with ourselves."

NINGPO, a city of China, in the province of Che-kiang, on the Takia or Ningpo river, near its mouth in the harbor of Chusan, 100 m. S. from Shanghai; lat. 29° 51′ N., long. 121° 32′ E.; pop. about 250,000. It is surrounded by a dilapidated wall about 6 m. in circumference, 25 feet high, and 15 feet broad at the top, with 5 gates. The streets are long and broad, and the town is intersected by canals and connected with its suburbs by a bridge of boats. There are several temples, the most remarkable of which is a brick tower 160 feet high, said to have been erected 1,100 years ago. There are government warehouses and public buildings. The houses are mostly one story high, but the shops are superior to those of Canton. In 1848 a missionary hospital was established at Ningpo, and all classes have resorted to it for surgical assistance. The ground in the neighborhood is flat and exceedingly fertile, but a range of barren hills runs along the sea shore. The principal manufactures are silk, cotton, and woollen goods; and there are very extensive salt works. Vessels of about 300 tons can come up to the town, while those of greater size load and unload at the mouth of the river. The foreign imports are small. Ningpo was taken by the British in 1841, and occupied for some months. It is one of the 5 ports opened to general intercourse by the treaty of Aug. 29, 1842.

NINON DE L'ENCLOS. See L'ENCLOS.

NIOBE, in Grecian mythology, a daughter of Tantalus, king of Lydia, by a nymph. She had 6 sons and 6 daughters, and boasting herself superior to Latona, who had borne only two children, Apollo and Diana, to avenge their mother, slew all the children of Niobe, who in her grief wept herself to stone.

NIOBIUM (symbol Nb), an obscure metal commonly supposed by chemists to be identical with tantalum or columbium. H. Rose has recently made it the subject of very elaborate investigations, the results of which are published in Poggendorff's *Annalen*, civ. 310, 432, 461. By treatment of the double fluorides of niobium and the alkaline metals with sodium at a light heat in a cast iron crucible, he obtained the metal in the form of a black powder of specific gravity 6.297. It proves to be a conductor of electricity, and is more easily acted on by reagents than tantalum. In nitric acid it is insoluble. Concentrated sulphuric acid dissolves it after long heating, and the solution has a brown color. It is also soluble in fluohydric acid, and by boiling with caustic potash or fusion with carbonate of potash. The metal ignites when heated in chlorine, and a yellow and white chloride are formed, the one, $NbCl_2$, being in much smaller quantity than the other, Nb_2Cl_3. From these compounds Rose deduces the chemical equivalent of niobium 48.82 (or 610.37, oxygen being 100).

NIPHON, or Nipon, the principal of the Japanese islands, which gives its native name to the whole empire. It extends from lat. 41° 45′ to 33° 26′ N., and is separated on the N. from the island of Yesso by the strait of Sangar, on the S. from the islands of Kiusiu and Sikokf by narrow straits, and on the S. W. from Corea by a channel 120 m. wide. The island stretches from N. E. to S. W. in a curved form, and is about 900 m. in length with an average breadth of more than 100 m., it being 280 m. wide at the broadest part. The area is estimated at 100,000 sq. m., or $\frac{1}{10}$ more than that of the island of Great Britain. It is divided into 53 provinces, and contains the two imperial capitals Yeddo and Miaco, and many other large cities, of which the most noted is Osaka. The coasts are much and deeply indented, and are lined with detached rocks and small islands. The island is traversed from end to end by a range of mountains, of which the principal peak is the volcano Fusiyama, 12,000 feet high. In these mountains are mines of gold, silver, and copper. Coal, naphtha, and porcelain clay are also found in the island. Among its vegetable productions are the palm, banana, sugar cane, rice, wheat, barley, the tea plant, beans, pepper, ginger, and camphor. The climate is subject to great extremes of heat and cold, especially in the north, but is generally healthy.

NISARD, Jean Marie Napoléon Désiré, a French author, born in Châtillon-sur-Seine, March 20, 1806. At the age of 20 he became a regular contributor to the *Journal des débats*, but after the revolution of 1830 he broke off his connection with it on account of political differences, and wrote literary articles for the *National*, of which his friend Armand Carrel was then the editor. A steadfast admirer of the French writers of the 17th century, and particularly of Boileau, he was opposed to the new school of literature, and animadverted strongly upon its representatives in his first publication, *Les poëtes Latins de la décadence* (8vo., 1834), in which he drew critical parallels between the minor Latin poets of the imperial period and the new French poets, as for instance between Lucan and Victor Hugo. His *Manifeste contre la littérature facile* was answered by Jules Janin, and the controversy became one of the chief literary events in Louis Philippe's reign. In 1835 Nisard was appointed by M. Guizot *maître de conférences* on French literature in the normal school, afterward chief secretary to the minister of public instruction and master of requests in the council of state, and finally in 1837 chief of the department of science and literature. In 1842 he was elected to the chamber of deputies by his native department of Côte d'Or, and attached himself to the conservative party. In 1843 he became the successor of Burnouf as professor of Latin eloquence in the college of France, and this was the only office he retained after the revolution of Feb. 1848. In 1850, on the death of M. de Feletz, he was elected to the French academy. He had meanwhile been reconciled to the Bonapartists, and in 1852 was appointed general inspector of superior instruction; and on the retirement of M. Villemain with the title of honorary professor, Nisard succeeded him in the chair of French eloquence at the Sorbonne. Here M. Nisard was at first coldly received, and in 1855 he was hissed from his chair by the students; but with the assistance of the police he continued his lectures. In 1857 he was called to the directorship of the high normal school, which under his management is now (1861) undergoing a thorough renovation. Beside the works above alluded to, he has published *Histoire et description de la ville de Nîmes* (8vo., 1835); *Mélanges* (2 vols. 8vo., 1838); *Précis de l'histoire de la littérature Française depuis ses premiers monuments jusqu'à nos jours* (18mo., 1840), a valuable sketch, which was first printed in the *Dictionnaire de la conversation;* and *Histoire de la littérature Française*, a remodelling of his lectures at the normal school. Of this work, which is not yet completed, 3 volumes have appeared, including French literature to the end of the 17th century. His most important essays published in the reviews, have been reprinted under the titles of *Études sur les grands hommes de la renaissance* (12mo., 1856), and *Études de critique littéraire* (12mo., 1858), containing his essay *Les deux morales*, which has become celebrated for its intrinsic merits, as well as from the commotion which it produced at the Sorbonne. He has also superintended the publication of the *Collection des classiques Latins*, with a French translation (27 vols. 8vo., 1839 *et seq.*).

NISI PRIUS, a law term, which originated as follows. Anciently, nearly all actions in England of any importance were begun and tried before the courts of Westminster. But when the custom began of bringing actions of less value before these courts, and these grew to be numerous, the burden of coming from different and distant parts of England to London became very great; and a practice was introduced, some centuries since, of beginning a case in Westminster, as the law required, but continuing it from term to term, "unless before" the next term a court which could try the case should be held in the county where the cause of action arose or existed. The record was in Latin; and the words *nisi prius* (unless before), being the essential part, gave name to the whole procedure. A court of eyre or of assize always did sit in the county in the vacation, and so the case was sure to be tried at home. Practically the phrase "nisi prius court," both in England and the United States, now signifies a court held by one of the judges, or less than a whole bench, usually with a jury, because such was the constitution of the assize courts before mentioned. Hence the determination of a law question at nisi prius is commonly made by one judge only, and on the spur of the moment. The nisi prius reports contain these rulings and decisions; as, for example, Espinasse's "Reports of Cases argued and ruled at Nisi Prius, in the Courts of King's Bench and Common Pleas," from 1793 to 1811; and Campbell's "Reports of Cases determined at Nisi Prius, in the Courts of King's Bench and Common Pleas," from 1807 to 1816. Such decisions have not, generally speaking, the weight and authority of the formal determinations of a court sitting *in banco*, or as a full bench, for the hearing of arguments at law. Many of the nisi prius reports, as for instance those above mentioned, are however of great value, and are constantly cited.

NISIBIS, in ancient geography, the capital of Mygdonia, a district of Mesopotamia, on the river Mygdonius. It was important as a commercial city and a military post, being frequently conspicuous during the wars of the Romans against Armenia, Parthia, and Persia. From the latter part of the 4th century it remained in the hands of the Persians. Its ruins are now visible near Nisibin in the Turkish province of Diarbekir. Some critics, and among them Michaelis, identify the district in which it was situated with the Aram Zoba of Scripture; while others place the latter near Nisib on the Euphrates, a place known in modern history by the victory of Ibrahim Pasha over the Turkish army in 1839.

NITRATES, salts formed by the combination of nitric acid (see NITROGEN) with bases. Some of these are natural products, as the nitrates of potash, soda, lime, and magnesia; and others are artificially formed, as the nitrates of the oxides of the metals. Several of both kinds are sufficiently important to require particular mention. None of these salts possess acid reaction; they are distinguished for their solubility in water, and hence, the acid not forming a precipitate with any base, its presence, free or combined, can be determined only by other methods, several of which are described in works on chemistry. At a high heat the nitrates undergo decomposition, sometimes being converted into free nitric acid and the oxidized base, and sometimes into oxygen, which escapes, and nitrous acid, which remains in combination with the base, forming a nitrite. This may itself be decomposed by increase of heat. It is this property which renders the nitrates powerful oxidizing agents, and adapts them as fluxes, especially when there is also an affinity between the base and the oxidized body.—First in importance among these salts is the nitrate of potash, called also nitre and saltpetre, represented by the formula KO, NO_5, and hence consisting of one equivalent each of potash = 47.2, and nitric acid = 54, in 101.2 parts. It is a white salt crystallized in long 6-sided prisms, soluble in 4 or 5 times its weight of cold and ⅖ its weight of boiling water, not subject to deliquesce, and possessing a sharp, cooling taste. It fuses without losing weight at 662°. In large crystals it is apt to contain water mechanically held, which retains in solution some of the foreign salts derived from the mother liquor, as sulphate of soda and the chlorides of potassium and sodium. Smaller crystals are commonly purer; but common salt is almost always present to some extent, and is particularly injurious to saltpetre designed for the manufacture of gunpowder. Saltpetre is known by its deflagrating with bright scintillations when thrown on red-hot coals. Its mixture with carbonaceous matters is explosive when highly heated; and when this mixture is intimately made the product is gunpowder; sulphur, which is commonly introduced, not being essential for this property. (See GUNPOWDER.) Saltpetre is obtained both as a natural and artificial product. It is generated wherever nitrogenous animal and vegetable matters undergo decomposition in the presence of moist calcareous earth containing potash, the temperature being generally above 60° F. Ammonia is produced, which is decomposed, its nitrogen forming with oxygen nitric acid, which combines with the alkaline earths present. Wood ashes determines the production of nitrate of potash, and nitrate of lime, also produced, may be made to yield its nitric acid to potash added to the mixed products in the form of carbonate of potash. Nitre forms naturally upon the walls of cellars and of caves as an efflorescence. On the surface of some soils in warm countries it also appears in this form after the rainy season, and in sufficient quantity to render its collection profitable. In Hindostan it is thus produced so abundantly and cheaply, that our own market is supplied almost wholly from Calcutta; and the native sources of this salt in the limestone caves of Kentucky and other states, which during the last war with Great Britain furnished this necessary ingredient of gunpowder, are now comparatively valueless. To separate the nitre from the earth which contains it, this is lixiviated with water, which dissolves out the soluble salts; and in the large vats into which the liquid is conveyed the salts crystallize as the water is evaporated by solar or artificial heat. The first crystals that form are crude saltpetre; nitrates of lime and magnesia mostly remain in the mother liquor, and are either thrown away with it, or in some cases are decomposed by treatment with carbonate of potash, and their nitric acid is thus recovered in new quantities of nitre. Natural saltpetre beds are also worked in Hungary, Egypt, Spain, and in various warm countries.

In the island of Ceylon Dr. J. Davy examined numerous caves in calcareous and feldspathic rocks, upon the walls of which nitre was largely collected. During the dry season the incrustation which formed in the wet months was removed by means of picks together with more or less of the rocky material. The whole was then crushed and treated with water, wood ashes being also added. The lye was then drawn off and evaporated. Some of these caves contained large quantities of the excrement of bats that resorted to them; but others, which also produced saltpetre, were not frequented by these animals. In hot countries it does not appear that the immediate presence of decomposing animal matters is essential to the production of saltpetre; but ammonia thus derived and existing in the atmosphere is no doubt brought to the potash.—In temperate climates the salt is artificially produced in what are called in Europe saltpetre plantations. These are compost heaps of animal and vegetable matters intermixed with earth, and with potash, lime, and magnesia, presented in porous form, as in ashes, marl, chalk, old mortar, &c. The heaps are exposed to the air, but it is better to protect them from the rain. Gutters are excavated around them, and in these are kept liquids from the cattle stalls and other similar fluids rich in nitrogen, with which the materials are occasionally moistened. As practised in Sweden, the heaps are worked over once a week in summer and once a month in winter, and twigs are introduced to keep them open. The work is generally continued 3 years, until the product of saltpetre amounts to about 5 ounces in 1,000 cubic inches. For an annual product of 10 cwt. it is necessary to work over full 120 cubic fathoms of earth, of which ⅓ becomes ripe each year, and is removed from time to time from the outermost layers to be lixiviated. The crude product obtained is afterward purified by repeated solutions and crystallizations. In France, about the year 1775, great attention was given to the subject of producing saltpetre. No fewer than 66 treatises were furnished to the government in response to an offer of a prize for the best one; and from these the commissioners prepared a full treatise of their own. During the revolution Berthollet the chemist was actively employed in directing the manufacture in different parts of France. In later times the process has been investigated by Gay-Lussac, Liebig, and especially by Kuhlmann; and the improved methods are described in detail in Knapp's "Chemical Technology" (vol. i.), in Thénard's *Traité de chimie*, in Dumas' *Chimie appliquée aux arts*, and in Gmelin's "Handbook of Chemistry."—Beside its use for making gunpowder, nitre is employed in the manufacture of nitric acid. It is also a useful oxidizing flux in metallurgical operations, and in medicine is much used for its cooling properties in inflammatory affections, and also as a promoter of perspiration and the secretions of the liver. In acute rheumatism it is sometimes administered in doses repeated at intervals to the extent of 2 oz. in 24 hours; though ½ oz. in concentrated solution causes heat and pain in the stomach, which may be followed by convulsions and death. When taken in poisonous quantities there is no antidote known, and the only relief is by the use of the stomach pump, laudanum to allay the pain, and mucilaginous drinks and cordials. Nitre is also a powerful antiseptic, and is used in the preservation of meats, as for curing hams.—Another variety of nitre, called cubic nitre, is the salt, nitrate of soda, NaO, NO_5, consisting of one equivalent of soda = 31 parts, and one of nitric acid = 54 parts in 85. It is found in beds among the hills in the province of Tarapaca which skirt the coast of Peru, and at their base on the W. side of the pampa over an extent of not less than 150 miles. As described by John H. Blake, Esq., in the "American Journal of Science" (vol. xliv., 1843), these low hills, rising but little above the level of the plain, are covered with a light, sandy marl mixed with minute fragments of shell. This covering, when it yields and crackles beneath the feet, indicates the presence of nitrate of soda, and the beds of this salt are found, on digging down a foot or two, overlaid generally by a stratum of common salt. Under the nitrate of soda is marl impregnated with saline matter and mixed with fragments of shells. The nitrate of soda, as quarried, is very variable in quality, some yielding not more than 25 per cent., and some 3 times as much of the genuine salt. It is mostly worked with the pick and shovel, but is sometimes so compact that the beds have to be blasted. Portions of the salt are pure white like loaf sugar, and others are colored reddish brown, lemon yellow, and gray. Its average composition was found by Dr. A. A. Hayes to be as follows: nitrate of soda, 64.98; sulphate of soda, 3.00; chloride of sodium, 28.69; iodic salts, 0.63; shells and marl, 2.60; total, 99.90. Mr. Blake states that nitrate of soda is very generally found along the W. coast of South America, impregnating the soil with other saline matter, and sometimes forming a thin crust upon the surface; but the only extensive beds known are in Tarapaca between lat. 19° 30′ and 20° 45′ S., and long. 69° 50′ and 70° 5′ W. The extraction and refining of the salt afford employment to a large part of the inhabitants of the province. It is taken to Iquique for shipment, and in 1837 the exportation amounted to 150,000 quintals, two thirds of which was to England, nearly one third to France. It is used for the manufacture of nitric acid, but its tendency to deliquesce renders it unfit for that of gunpowder. From its composition it should prove a valuable fertilizer. The crude salt is refined by Indians, directed by a Spanish majordomo. As it is quarried the workmen carry it in bags to the *officinas* or working places, which are always near by, and there it is broken up by women and children into small pieces.

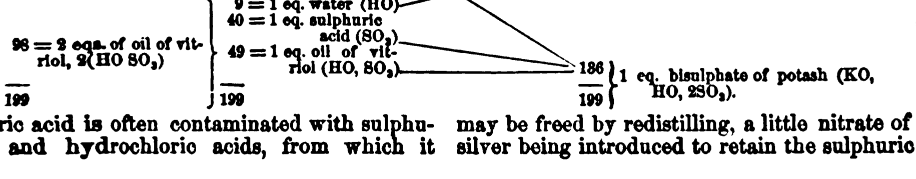
These are thrown into copper kettles of the capacity of 50 gallons each, set within walls formed of cakes of salt. The kettles being about two thirds filled, water is added, and a strong fire is kept up till the water is saturated, when it is dipped into tubs to settle, and then the solution is transferred to shallow vats to crystallize. The residue, consisting principally of chloride of sodium and earthy matter, is thrown away, often carrying with it as much nitrate of soda as has been saved. The cost of the article at Iquique is reckoned for each 102 lbs. at 62 cents for labor in refining, 38 for fuel, 12 for tools and powder, and from 68 to 75 for transportation; or in all about $1.87, to which should be added the general expense of the operation and the cost of bags for packing. The salt is reported to occur in large quantities in Pernambuco, west of Ipu, the formation extending 15 to 20 miles.—Of the metallic nitrates, the most important is that of silver, consisting of one equivalent of oxide of silver = 116, and one of nitric acid = 54. It is prepared by dissolving pure silver in nitric acid. The salt crystallizes in square tables, which are colorless and anhydrous. At 426° it fuses, and may then be cast into the crystalline sticks called lunar caustic, employed in surgery. At higher temperatures it is reduced to a metallic state. Nitrate of silver acts powerfully as a caustic, destroying the vitality of the flesh to which it is applied. Its solution in pure water remains colorless; but if the smallest quantity of organic matter be present, it is soon discolored when exposed to the light. It is thus a delicate test of the presence of organic matter. With albumen, fibrine, &c., it forms insoluble compounds, and may be employed to remove them from solution. The property of the solution to turn black by the reduction of the oxide of the silver, when the fluid is applied to organic substances and exposed to the light, renders it of important use for marking linen. The so called indelible ink is prepared for this purpose by dissolving one part of the salt and 4 parts of gum arabic in 4 parts of water, and adding a small quantity of India ink. The spot to be marked is first wetted with a solution of carbonate of soda and dried, and when written upon it is exposed to the sunlight. The spots may be removed by converting the silver with a few drops of iodine into the iodide, and dissolving this by a solution of hyposulphite of soda, or a dilute solution of caustic potash. A hair dye is also prepared with nitrate of silver by dissolving it in ether. From recent microscopical examinations very carefully made by Mr. T. J. Herapath of England, upon some obscure marks found upon the wrappers of mummies, there is reason to believe that the ancient Egyptians were acquainted with the compound nitrate of silver, and consequently with nitric acid.

NITRE. See NITRATES.

NITRIC ACID. See NITROGEN.

NITRITES. See NITROGEN.

NITROGEN (Gr. νιτρον, nitre, and γενναω, to produce), a simple gaseous body, so named from its being an essential element of nitric acid. It was first observed in 1772 by Dr. Rutherford of Edinburgh, and in 1775 shown by Lavoisier, and about the same time by Scheele, to be a constituent of the atmosphere. Lavoisier called it azote (Gr. α privative, and ζωη, life), on account of its not supporting respiration. It is inert in its properties, possessing neither taste, smell, nor color; and in the air, of which it forms about ⅘ of the bulk, it appears to act the part of a diluent, tempering the too energetic qualities of the oxygen. (See ATMOSPHERE.) It is designated by the symbol N; its equivalent is 14; and its weight is 0.9713, air being 1.0000. It has never been liquefied under any pressure; it is not inflammable, and burning bodies are at once extinguished when immersed in it. It is sparingly absorbed by water, of which 100 parts take up 2½ parts of the gas. Nitrogen is widely diffused among organic bodies. It exists in almost every vegetable substance, and forms a considerable part of what are known as the nitrogenous principles of food, as albumen, caseine, animal fibrine, and gluten. It is also an essential ingredient of some of the most potent medicines and poisons, as quinia, morphia, prussic acid, and strychnia. With hydrogen, in the proportion H_3N, it forms the compound, ammonia; with carbon, cyanogen. Its compounds with oxygen, some of which will be noticed below, are also remarkable for their energetic character. These are 5 in number, as follows: 1, protoxide of nitrogen, NO; 2, deutoxide of nitrogen, NO_2; 3, nitrous acid, NO_3; 4, hyponitric acid, NO_4; 5, nitric acid, NO_5.—To procure nitrogen, it is necessary merely to deprive the air of its oxygen, which may be done by various methods, as by burning phosphorus in a bell glass of air; or by leaving a piece of phosphorus several days in the glass standing over water; or still better, by passing air through a tube partially filled with copper turnings heated to redness. It is also liberated when ammonia is decomposed by chlorine. Considering the inexhaustible sources of nitrogen in the atmosphere, it would be a great acquisition to agriculture could some method be devised of eliminating it with economy, and causing it to form with hydrogen ammoniacal compounds which could be used in the place of guano and other manures. It would also be highly advantageous could nitrogen, obtained from the same source, be applied to the preparation of cyanides, in the manufacture of Prussian blue. Attempts which have been made to effect these objects have failed, owing to the inertness of nitrogen, and the difficulties of causing it to enter into combination with hydrogen and with carbon. A method, however, has been recently announced by which MM. Marguerite and Sourdeval have attained these objects, making use of carbonate of barytes as the compound for fixing the nitrogen of the air, which they obtain in the form of cyanide of barium. From the cheapness of the natural carbonate and of the process, it is hoped that the method may prove of no little importance to the agricultural interest and to the manufacture of Prussian blue. The process is as follows. A mixture of carbonate of barytes with about 30 per cent. of iron filings and some coal tar and saw dust is calcined in an earthen crucible at a high temperature, which is kept up for some time. The greater part of the carbonate of barytes is converted into anhydrous barytes. A current of air is then made to traverse slowly the porous mass; and while its oxygen is converted into carbonic oxide as the air passes over incandescent charcoal, its nitrogen in the presence of the carbon and barium is transformed into cyanogen, and produces considerable quantities of cyanide. If the mixture be cooled while protected from the air, and washed with boiling water, an abundant precipitate of Prussian blue may be obtained by adding a salt of iron. The mixture is introduced into a cylinder, and a current of steam at a temperature below 300° C. is passed through it, the effect of which is to decompose the cyanide of barium, and cause the whole of its nitrogen to unite with the hydrogen of the steam to form ammonia. The cheap preparation of ammonia by this process suggests also the preparation of nitric acid from this product.—NITRIC ACID is the most important compound of nitrogen and oxygen, and the source from which the others named above are prepared. The acid was known to the alchemists, but its composition was first discovered by Cavendish in 1785. It is developed by the combination of the elements of the atmosphere when electrical sparks are passed through moist air; and it may almost always be detected combined with ammonia in rain water, especially after a thunder storm. It occurs in nature also in the mineral salts nitrate of soda and nitrate of potash, also known as nitre or saltpetre, which are the sources whence it is procured in large quantities. Its composition is: nitrogen 1 atom = 14, and oxygen 5 atoms = 40; or in 100 parts, nitrogen 26, oxygen 74. In this state uncombined with water it has been obtained by M. Deville in the form of brilliant, transparent crystals, derived from the right rhombic prism, which melt at 85° and boil at 113° F. With this exception the acid is known only in combination with water. In its most concentrated form, containing 85.72 of anhydrous acid and 13.28 of water, it has a density of 1.52, boils at 184° F., and freezes at about —40°. This is the so called fuming nitric acid, the composition of which is expressed by the formula, NO_5+HO. By distilling it with much water a product of uniform composition is soon obtained, which boils at 253.4°, and contains 60 per cent. of pure acid and 40 per cent. of water; its density is 1.42; and its composition is represented by the formula, NO_5+4HO. This acid is more stable in character than the fuming acid, which tends to absorb water and pass into the other. Nitric acid of commerce, commonly known as aquafortis, is of various degrees of strength. It often contains ¾ water, and is of yellow color from the presence of nitrous acid or the other lower oxides of nitrogen. The acid free from other compounds is colorless. It possesses powerful corrosive properties, turning the skin and all animal matters that contain albumen yellow; and owing to this property it is sometimes applied to dyeing woollens yellow, and is also used as a cautery. From the readiness with which its oxygen is separated, nitric acid is much used for oxidizing other bodies. Most of the metals are thus easily attacked, and solutions of their oxides obtained. Some, as mercury, copper, and zinc, are acted upon with great violence by the concentrated acid; others, as tin and iron, are more readily oxidized by dilute acid. When the acid is mixed with ¼ its bulk of sulphuric acid and added to a few drops of an essential oil, as of turpentine, violent combustion and explosion take place. Red-hot charcoal is also thrown into brilliant combustion by the application of a little of the acid. When some vegetable substances, as lignine, starch, &c., are treated with concentrated nitric acid, definite compounds of peculiar character are produced without development of violent action. Paper is thus converted into a tough and highly inflammable material, and cotton into the so called gun cotton.—Nitric acid is obtained by distilling nitrate of potash or nitrate of soda with sulphuric acid. In the small way, equal parts of the salt and of strong oil of vitriol are introduced into a glass retort and heated; on the large scale, iron retorts are used, coated within in their upper parts with fire clay, and only half the weight of oil of vitriol is used. Nitrate of soda, being cheaper than nitre, and yielding 10 per cent. more nitric acid, is to be preferred. In the use of nitre the changes that take place are thus represented:


Before decomposition.
101 = 1 equiv. of nitrate of potash (KO, NO₅)
54 = 1 eq. nitric acid (NO₅)
47 = 1 eq. potash (KO)
9 = 1 eq. water (HO)
40 = 1 eq. sulphuric acid (SO₃)
98 = 2 eqs. of oil of vitriol, 2(HO SO₃)
49 = 1 eq. oil of vitriol (HO, SO₃)
199
199
After decomposition.
63 1 eq. liquid nitric acid (HO, NO₅).
136 1 eq. bisulphate of potash (KO, HO, 2SO₃).
199

Nitric acid is often contaminated with sulphuric and hydrochloric acids, from which it may be freed by redistilling, a little nitrate of silver being introduced to retain the sulphuric acid and chlorine in the form of insoluble sulphate and chloride of silver. In the chemical and pharmaceutical works a table is given of the following form, furnished originally by Dr. Ure, by which the strength of the acid is seen by reference to its specific gravity:

Sp. gr.	Hydrated acid in 100.	Dry acid in 100.	Sp. gr.	Hydrated acid in 100.	Dry acid in 100.
1.50	100	79.700	1.27	46	36.662
1.47	89	70.933	1.24	41	32.677
1.45	83	66.155	1.20	35	27.895
1.41	73	58.181	1.17	30	23.910
1.363	63	50.211	1.11	20	15.940
1.3	51	40.647	1.043	8	6.376

Nitric acid is a most important agent in the chemical arts and in medicine. Some of its uses have already been referred to. It is a solvent of most of the metals, and combined with hydrochloric acid forms the *aqua regia* used for dissolving gold. Its solution of tin is used for the preparation of mordants in dyeing. In engraving it serves by its solvent property to etch the plates of copper. It is a powerful caustic in surgery, and is applied as a lotion to ulcers. In medicine it is used as a tonic and antiseptic, and, largely diluted with water, forms a beneficial drink in typhoid and other forms of fever. Its vapor is a powerful disinfectant, but probably inferior to chlorine for this purpose. Its use was introduced into the London hospitals by Dr. Carmichael Smyth, who received a reward of £5,000 from the British parliament. The vapor is generated as required by pouring sulphuric acid upon powdered nitre, which is placed in a saucer and this set upon hot sand contained in an earthen vessel. The concentrated acid is a most acrid poison.—The salts formed by nitric acid are called nitrates. They are all soluble in water; most of them fuse readily, and are decomposed at a high heat. The most important are the natural compounds employed for the manufacture of nitric acid. (See NITRATES.)—The other compounds of nitrogen and oxygen are of little importance compared with the acid just described. Nitrous acid (NO_4) is an unstable compound, known by its deep red fumes. These are generated by the action of diluted nitric acid upon copper clippings, the deutoxide or nitric oxide (NO_2) being first formed, which coming in contact with the air absorbs more oxygen. It is the nitrous acid in the fuming nitric acid of commerce which sometimes imparts to this red fumes. Its salts are called nitrites.—The lowest oxide of nitrogen, called the protoxide, and also nitrous oxide, possesses some properties of peculiar interest. The gas was first recognized by Priestley in 1776. It is obtained by partially deoxidizing nitric oxide by means of iron filings, or by exposing the salt nitrate of ammonia in a glass retort to a temperature of about 420°. To obtain pure gas, the salt should be free from chlorine, and the temperature not so high as to produce white vapors. Nitrous oxide has a sweet taste, but no odor or color. Its density is 1.527; it liquefies under a pressure of 50 atmospheres at 45°, and at still lower temperature is solidified. It supports combustion, giving even increased brilliancy to the flame of burning bodies. Its chief interest is in its effect upon the human system when respired, which has given to it the names of exhilarating and laughing gas. It produces intoxicating sensations, generally of a pleasant nature, often leading to wild and extravagant actions. The effect usually passes off in a short time after inhaling the gas; but in cases of individuals liable to a rush of blood to the head, or otherwise affected with disease, it has produced serious results. Only pure gas should ever be used for this purpose, and this unmixed with common air. This peculiar quality of nitrous oxide was first observed by Sir H. Davy, who published an account of the gas in 1800. The late Mr. Horace Wells of Connecticut experimented with it as an anæsthetic agent before the properties of ether for this use were discovered. Water charged with the gas has been applied in medicine as a tonic, stimulant, and diuretic. In cases of dogs asphyxiated or poisoned, it has been found when injected into the bowels to act as an antidote and reviver. (See "Boston Medical and Surgical Journal," vols. xlvi. and xlvii.)

NITROUS ACID. See NITROGEN.

NITROUS OXIDE. See NITROGEN.

NITZSCH, KARL IMMANUEL, a German theologian, son of Karl Ludwig Nitzsch, superintendent-general of the university of Wittenberg, born in Borna, Sept. 21, 1787. He was educated at Wittenberg, and studied theology, embracing the opinions of Schleiermacher and the more liberal school. In 1817 he became professor in the new theological seminary at Berlin. In 1822 he accepted a position in Bonn as professor and university preacher; and in 1847 went to Berlin as the successor of Marheineke, where he was professor, university preacher, and member of the high consistory. He is the author of a number of smaller treatises on dogmatics, &c.; and among his larger works are: *System der Christlichen Lehre* (Bonn, 1829; 6th ed., 1851; translated by Montgomery, Edinburgh, 8vo., 1849), and *Praktische Theologie* (vols. i. and ii., Bonn, 1847–'8).—GREGOR WILHELM, a German philologist, brother of the preceding, born in Wittenberg, Nov. 22, 1790. He studied philology under Lobeck in 1810, enlisted as a volunteer in the war of liberation, was present at the battle of Leipsic, and after his return became co-rector of the Wittenberg lyceum. In 1815 he exchanged this situation for that of sub-rector in Zerbst, in 1820 returned to Wittenberg, and in 1827 was appointed professor of ancient literature at Kiel, where he devoted himself especially to the philological department. In June, 1852, the offices and salaries of Nitzsch and 7 other professors were declared forfeited, but in August of the same year he was appointed professor of archæology in Leipsic. He is distinguished as the able opponent of F.

A. Wolf's theories in regard to the poems of Homer. His chief work, *Die Sagenpoesie der Griechen* (Brunswick, 1852), and nearly all the rest of his numerous writings, are devoted to the discussion of that question, and to the general criticism of the Homeric poems.

NIVERNAIS, an ancient province of France, now mostly comprised in the department of Nièvre. It was situated near the centre of the kingdom, and bounded N. E., E., and S. E. by Burgundy, S. and S. W. by Bourbonnais, W. by Berry, and N. W. by Orléanais. It was subdivided into the Vaux or valleys of Nevers, the Donziois, the valleys of the Yonne, of Montenoison, and of the Amognes, the country between the Loire and the Allier, Bazois, and Morvan. Its ancient inhabitants were the Ædui and Sequani, and it was afterward subject to the Franks. In the 10th century it became independent. The capital was Nevers.

NIZAM, and Nizam's Territory. See Hyderabad.

NOAH, a patriarch in biblical history, son of the second Lamech, and the 10th in descent from Adam. It is related in Genesis that he was chosen by Jehovah on account of his piety to be the father of the new race of men that should people the earth after the flood. He was warned by God of the approaching deluge, and built an ark under the Almighty's directions, into which he entered, with his family and all kinds of animals. The flood came, and all living things perished save those preserved in the ark. After the waters had subsided and the dry land began to appear, the ark rested on Mount Ararat, in Armenia, where Noah offered a sacrifice to the Lord, who accepted it and made a covenant with him, ratifying it by the sign of a rainbow in the clouds. Noah then "began to be a husbandman;" he planted a vineyard, "and he drank of the wine and was drunken, and was uncovered within his tent." His son Ham ridiculed the exposure of his father, but his two other sons, Shem and Japheth, with filial respect covered him with a garment. When Noah awoke and knew what had happened to him, he blessed Shem and Japheth, but cursed Canaan, the son of Ham, prophesying of him that he would be a servant of servants to his brethren. By some there is thought to be a coincidence between the history of Noah and the traditions of many other nations, viz.: the Xisuthrus of the Chaldeans, the Phrygian Noë, the Manes of the Lydians, and the Deucalion of the Greeks. (See Deluge.)

NOAH, Mordecai Manuel, an American author and journalist, of Jewish origin, born in Philadelphia, July 19, 1785, died in New York, March 22, 1851. He early attempted to learn a mechanical business, but left it for the study of law, literature, and politics. He removed to Charleston, S. C., and in 1811 was appointed by President Madison U. S. consul to Riga, and two years afterward consul to Tunis, with a mission to Algiers. The vessel in which he made the passage out was taken by a British man-of-war, and Mr. Noah was detained a prisoner in England for several weeks. On returning in 1819, he published a volume entitled "Travels in England, France, Spain, and the Barbary States, from 1813 to 1815" (8vo., New York). Taking up his residence in New York, he became editor of a democratic journal called the "National Advocate," and was subsequently elected sheriff of the city and county. In 1826, the "Advocate" having been given up, he began the publication of the "New York Enquirer," which was afterward united with the "Morning Courier" to form the "Courier and Enquirer." In 1834 he began a daily newspaper called the "Evening Star," which was finally merged in the "Daily Times." In July, 1842, he founded another daily, called the "Union;" and in 1844 he commenced the "Weekly Messenger," which was soon merged in the "Sunday Times," and for which he wrote until a short time previous to his death. Major Noah, as he was always called, at one time endeavored to form a settlement of the Jews on Grand island in the Niagara river; and in his memorial to the legislature of New York in 1820 for its purchase, he recounted the indignities that nation had endured, the benefits that had accrued to Spain, Portugal, France, and Germany from their commercial enterprise, and the advantages that would result to the United States if his people could exchange "the whips and scorns of Europe, Asia, and Africa for the light of liberty and civilization" in America. The scheme failed, however, as the European rabbis were not satisfied as to his claim to be the leader of Israel; and no trace of the "city" was left but a monument of brick and wood, with the following inscription, preceded by a text from Deuteronomy: "Ararat, a city of Refuge for the Jews. Founded by Mordecai M. Noah, in the month of Tisri, 5586 (Sept. 1825), and in the 50th year of American Independence." This monument has since disappeared. He held for a brief period, by appointment of the governor, the office of judge of the court of sessions, was at one time surveyor of the port of New York, and at various times held other appointments in the gift of his political friends. In 1845 he delivered a discourse upon the restoration of the Jews, and published a collection of his newspaper essays, entitled "Gleanings from a Gathered Harvest" (12mo., New York). He also published a "Translation of the Book of Jasher" (8vo., New York, 1840), and was the author of several successful dramas.

NOAILLES, House of, a noble French family of Limousin, tracing its origin back to the 10th century. Its most celebrated members are the following: I. Antoine, born in 1504, died in 1562. He served as a soldier and diplomatist under Francis I., distinguished himself at the battle of Ceresole in 1544, was created grand admiral of France by Henry II. on his accession to the throne, was sent on a mission to England, and negotiated the truce of Vauxcelles in 1556. His *Négociations en Angleterre*, as well as those of his brother Philippe, bishop of Acqs, and one of the most skilful diplomatists of his time, were published by the abbé Vertot (3 vols. 12mo., 1763). II. LOUIS ANTOINE, born in 1651, died in 1720. He became archbishop of Paris in 1695 and cardinal in 1700. In the controversy between Bossuet and Fénélon, he at first tried to act as a mediator, and then sided with the former. His want of decision in the matter of Quesnel's doctrines and the bull *Unigenitus*, which he subscribed only a few months before his death, kept up religious agitation in his diocese; but he was a man of unbounded charity, and during the dreadful winter of 1709 sent all his silver plate to the mint, and distributed the price among the poor of Paris. He rebuilt the archiepiscopal palace, and adorned the cathedral of Notre Dame. III. ANNE JULES, elder brother of the preceding, a duke and peer of France, born in 1650, died in 1708. He served against the Spaniards in 1667, and during the war against Holland in 1672. Being appointed governor of Languedoc, he evinced great lenity toward the Calvinists when the edict of Nantes was revoked by Louis XIV. in 1685. In 1689 he was placed at the head of the French army sent to aid the revolted Catalans, took several Spanish towns, and defeated the Spanish royalists in 1694. IV. ADRIEN MAURICE, son of the preceding, born in 1678, died in 1766. He first served in Spain under his father, and under the duke of Vendôme, accompanied Philip of Anjou when he went to Spain to take possession of the crown, and rendered valuable services to that prince. Louis XIV. bestowed upon him the rank of duke and peer of France. On the death of Louis in 1715, he was appointed one of the council of regency. In 1718, under Philip of Orleans, he became president of the council of finance, compelled the dishonest farmers of the public revenue to make restitution, and opposed the financial system of John Law. He resumed military service in 1733, won the rank of marshal at the siege of Philippsburg, and expelled the German troops from Worms in 1734. During the war of the Austrian succession he was defeated at Dettingen, in 1743, by George II. of England. He then entered the council of state, and as ambassador to Spain in 1746 effected a reconciliation between the two courts. His *Mémoires* were published by the abbé Millot (6 vols. 12mo., 1777). V. LOUIS MARIE, grandson of the preceding, born in 1756, died Jan. 9, 1804. Being a younger son, he bore the title of viscount. He joined the French expedition which sailed to assist the Americans in the war of the revolution, and fought with great gallantry in several engagements. He took the popular side in the French revolution of 1789, proposed the renunciation by the nobles of all their feudal privileges (Aug. 4), and laid before the constituent assembly a plan for the organization of the army, which was adopted. On the king's flight to Varennes he took the oath to the nation, and served in a military capacity on the northern frontier; but on the imprisonment of the king he resigned his commission and retired to England. After the 18th Brumaire he returned to France, reëntered the army, was sent as brigadier-general to St. Domingo, was wounded in capturing an English sloop of war, and was taken to HAVANA, where he died. VI. PAUL, duke of, born Jan. 4, 1802. The offspring of a younger branch of the family, he inherited the title of duke from his uncle, who died in 1823. He took his seat in the chamber of peers in 1827, and kept it after the revolution of 1830, though he was an adherent of the exiled Bourbons. In 1848 he retired to private life. He was elected to the French academy, as successor to Chateaubriand. He is the author of a *Histoire de Mme. de Maintenon* (2 vols. 8vo., 1848), and an *Essai sur la maison royale de St. Cyr*, first privately printed and afterward published in an enlarged form in 1856.

NOBILITY (Lat. *nobilitas*), a class of persons elevated by hereditary rank above the mass of the people. The origin of this institution is very remote, as it is found existing among almost every people at the dawn of history. The earliest nobility seems to have been priestly in character, as for instance the Brahmins of India. Among the Romans the patrician families who formed the nobility had for a long period the exclusive right to exercise priestly functions. The ancient Germans, the Franks, Saxons, Normans, Danes, Swedes, and other northern nations, seem at first to have had no other hereditary nobility than the members of the royal family, who were supposed to be descendants of Odin and other deities. The present nobility of Germany and Scandinavia was founded chiefly by military chieftains in the middle ages. Hereditary nobility is said to have been confirmed in France by Hugh Capet toward the close of the 10th century, and it was fully established in England by William the Norman in the 11th century. Sir James Lawrence, in his "Nobility of the British Gentry," says that arms are the criterion of nobility, and that whoever has a shield of arms is a nobleman. In the northern and eastern countries of Europe, Germany, Sweden, Denmark, Russia, Poland, and Hungary, the titles of nobility descend to all the male posterity and to all the unmarried females of the family; but in France, Spain, Portugal, and Great Britain, the titles descend only according to the rules of primogeniture. In Great Britain the nobility consists of the five ranks of duke, marquis, earl, viscount, and baron. Baronets, knights, and the younger sons of peers are classed only among the gentry, while on the continent they would be held as nobles.

NOBLE. I. A S. E. co. of Ohio, drained by Wills, Seneca, and Duck creeks; area, about 400 sq. m. It was formed in 1851 from Morgan, Monroe, and Guernsey counties. It has an undulating and hilly surface, and is well timbered and fertile. It contains quarries of building stone and extensive coal mines. Capital, Sarahsville. II. A N. E. co. of Ind., drained by Elkhart and Tippecanoe rivers; area, 430 sq. m.; pop. in 1860, 14,387. The productions in 1850 were 206,295 bushels of Indian corn, 69,802 of wheat, 56,715 of oats, 21,625 lbs. of wool, and 2,487 tons of hay. There were 5 churches, and 1,844 pupils attending public schools. Capital, Albion.

NOBLE, Samuel, an English clergyman and author, born in London, March 4, 1779, died there, Aug. 27, 1853. He was the son of Edward Noble, a bookseller and author, was taught Latin and the ordinary branches of a good English education, and at the age of 14 was apprenticed to an engraver. In the last year of his apprenticeship he became acquainted with the writings of Swedenborg, and in March, 1801, was baptized into the New Jerusalem church. He immediately took an active part in spreading a knowledge of the doctrines of the church, and in 1810 was one of the founders of the London society for printing and publishing the writings of Swedenborg, of which he was for many years secretary. In that capacity he superintended through the press every work which it published, beside making several translations and revisions. In 1812 he assisted in founding the "Intellectual Repository" (monthly), the leading Swedenborgian journal of Great Britain, of which he was editor for 28 years; he was also a very large contributor to it. During this period he steadily pursued his profession of engraver, in which he attained a high rank and received a considerable income. In 1820 he was ordained a minister of the New Jerusalem church, for which he had prepared himself by diligent study of the Hebrew and Greek Scriptures, and succeeded Dr. Churchill as pastor of the Lisle street society, with which he remained connected till his death. He soon became distinguished as a preacher. In 1824 he delivered a course of lectures in vindication of the Scriptures from infidel objections, which he afterward enlarged and published under the title of "Plenary Inspiration of the Scriptures." Subsequently he delivered at Norwich another course of lectures, which was also published under the title of "An Appeal in behalf of the Doctrines of the New Church." These two works are now ranked among the standard publications of the New Jerusalem church, and have passed through several editions in England and the United States. In 1846 he published a volume of lectures on the "Important Doctrines of the True Christian Religion," and in 1848 a volume of sermons entitled "The Divine Law of the Ten Commandments Explained according to both its Literal and its Spiritual Sense." His last work was a new translation of Swedenborg's "Heaven and Hell."

NODAWAY, a N. W. co. of Mo., bounded N. by Iowa and W. by the Nodaway river, and drained by the Little Platte and the One Hundred and Two river; area, 710 sq. m.; pop. in 1856, 4,772, of whom 148 were slaves. The productions in 1850 were 167,113 bushels of Indian corn, 10,208 of wheat, 16,485 of oats, 7,487 of wool, and 64 tons of hay. Capital, Maryville.

NODDY, the common name of the birds of the tern family included in the genus *anoüs* (Leach). The bill is longer than the head, strong, with the culmen curved gradually to the acute tip, and a distinct angle to the lower mandible; wings long and pointed, the 1st quill the longest; tail long and graduated; tarsi rather short and slender; toes long, and united by a full web; hind toe long and slender; claws curved and sharp. The only species on our coast is the *A. stolidus* (Leach), 16 inches long, with an extent of wings of 32 inches, the bill 1¾, and the weight 4¾ oz.; the front of the head is grayish white, with a black spot over and before the eyes; the rest of the plumage sooty brown, except the primaries and tail, which are brownish black; the bill is black, the iris brown, and the legs and feet dull brownish red. They are found in the gulf of Mexico from Texas to the Atlantic, whence they proceed early in May to the Florida keys to breed; the nests are made of twigs and grass on bushes or low trees, several in company; the eggs are 3, 2 by 1⅜ inches, reddish yellow with dull red and purplish spots and patches, and are considered excellent as food. Several other species are described, inhabiting the tropical seas, where they are seen very far from land. They generally breed in large flocks, and in some places deposit their eggs on the bare rock. They are excellent swimmers and rapid fliers; not seeing very well at night, they are frequently caught at this time, when they have alighted on the spars of passing vessels, they are less shy than other terns.

NODE, the point at which the orbit of a planet or comet intersects the ecliptic, or at which the orbit of a satellite cuts that of its primary. The ascending node is where the planet, comet, or satellite crosses from S. to N., the descending node where it crosses from N. to S.; and a line joining the two is called the line of the nodes.

NODIER, Charles, a French writer, born in Besançon, April 9, 1783, died in Paris, Jan. 26, 1844. When he was scarcely 18 years old he published a disquisition upon the "Use of Antennæ in Insects," in which he attempted to show a connection between those organs and the sense of hearing. He went to Paris in 1801, and published several novels and miscellaneous poems; but having written a satirical ode entitled *La Napoléone*, in which, two years before the establishment of the empire, he denounced the imperial aspirations of the first consul, he was for a few months incarcerated at Ste. Pélagie. Returning to Besançon after his release, he became a proof reader, and afterward a print colorist. Through the influence of Jean Debry, prefect of Doubs, he was appointed professor of literature at Dôle, whence he removed to Laybach, where he held the post of public librarian, and afterward edited a newspaper. The events of 1814 recalled him to France; he welcomed the return of the Bourbons, and advocated their cause in various newspapers, chiefly in the *Journal des débats*, to which he was for a while attached as a regular contributor. In 1824 he was appointed librarian at the arsenal of Paris, and his rooms became the rendezvous of a brilliant circle of friends, including many of the young writers of the day. This period was the zenith of his literary fame; and although the French academy was decidedly hostile to the so called romantic school toward which he had a leaning, he was in 1833 elected a member of this learned society. He was distinguished at once as a scholar and a poet, an entomologist and a publicist, a grammarian, a bibliographer, and a novelist. His works are very voluminous.

NOÉ, Amédée. See Cham.

NOEL, Baptist Wriothesley, an English clergyman, born July 10, 1799. He is a son of Sir Gerard Noel Noel, and a younger brother of the earl of Gainsborough. He was educated at Trinity college, Cambridge, and was for many years a prominent clergyman of the established church, being one of the chaplains of the queen, and occupying the pulpit of St. John's, Bedford row, London, a proprietary chapel. He was also an active promoter of city missions, and other organizations for the benefit of the poor. In 1849 he withdrew from the established church, and joined the Baptists. Since his change of sentiment he has been pastor of John street chapel, Bedford row. He is still active in the promotion of objects of benevolence, and his eloquence has given great weight to his advocacy of measures of charity and reform. He has recently been engaged in a movement for the reformation of prostitutes. His published works are: "Sermons preached at the Chapels Royal of St. James and Whitehall;" "Notes of a Tour in Switzerland in the Summer of 1847;" "The Gospel of the Grace of God, illustrated in a Series of Meditations;" "Christian Missions to Heathen Nations;" "Case of the Free Church in Scotland;" "Essays on the Union of Church and State" (1848); "Essay on Christian Baptism" (1849); "Essay on the Eternal Act of Baptism" (1850); "Letters on the Church of Rome" (1851); and "Protestant Thoughts in Rhyme."

NOLA, a city of Naples, in the province of Terra di Lavoro, about 15 m. E. N. E. from Naples, and 7 m. N. from Mt. Vesuvius; pop. about 12,000. It is one of the oldest cities of Campania, and was powerful enough in 327 B. C. to send 2,000 soldiers to the aid of Palæpolis and Neapolis against the Romans, to whom it became subject in 313. Hannibal made three attempts to take possession of Nola, but was each time repulsed by Marcellus. Immense numbers of ancient coins have been discovered at Nola, and its sepulchres have supplied innumerable Etruscan vases to the museums of Europe; and in its own museum is preserved the celebrated Oscan inscription called the *cippus Abellanus*. The emperor Augustus and his general Marcus Agrippa both died in the town; and it was the birthplace of Giordano Bruno. St. Paulinus was bishop of Nola in the 5th century, and to him is attributed the first introduction of church bells; whence the names *nola* and *campana* applied to them in the middle ages. It is still an episcopal see.

NOLLE PROSEQUI (Lat., to be unwilling to prosecute), a law term derived, as most law terms are, from those ancient days when all law proceedings and records were in Latin. It meant that the plaintiff declared in court and entered upon the record that he would no longer prosecute his suit. In civil cases, this is superseded in modern times by a nonsuit; but when a plaintiff enters a nonsuit, especially if he does this by order of court, he is still sometimes said to be "nol. pros'd." *Nolle prosequi* is very common in criminal cases. It is entered by the officer who acts for the government, when, from insufficiency of evidence or other reasons, he is unwilling to press the trial any further. He may do this, generally, at any stage of the proceedings. But it puts the defendant, or accused party, to this disadvantage: if he has a verdict in his favor, he cannot be tried again for that offence; but if *nolle prosequi* is entered, he may be indicted and tried again at any time for the same offence. He would prefer therefore a verdict in his favor; but this he ought not to have, if he would escape now by a merely accidental absence of testimony. On the contrary, if it be obvious that he could be fairly tried now, and would probably be acquitted, it would not be just to permit the government to hold this power of accusation and trial over him indefinitely. In some of the states there are statutes, or rules of court, intended to meet this difficulty; and practical mischief seldom arises from it, as a *nolle prosequi* would not be entered by government against the wishes of a defendant, without unquestionable reasons.

NOLLEKENS, Joseph, an English sculptor, born in London, Aug. 11, 1737, died April 23, 1823. He was the son of Francis Joseph Nollekens, a Flemish painter of some repute settled in London, and acquired the elements of his art in the studio of the sculptor Scheemakers, where he labored with great assiduity, repeatedly gaining prizes offered for competition by the society of arts. In his 23d year he visited Rome, and during an active career there of 10 years laid the foundation of the great reputation he subsequently enjoyed, and added considerably to his pecuniary resources, which had previously been meagre. Garrick and Sterne were among his first sitters, and his bust of the latter in terra cotta he always regarded as one of his most successful works.

He also executed a number of groups and ideal pieces of the ordinary classic type, a good specimen of which was the "Mercury and Venus chiding Cupid," and conducted a lucrative business in repairing and vamping up fragments of antique statuary. Returning to London in 1770, he opened a studio in Mortimer street, and, aided by the patronage of George III., who sat to him for his bust, and other influential persons, he embarked in a professional career of unvarying prosperity, which ended only with his life. His strength lay in his portrait busts, which were distinguished by accuracy of likeness, a refined expression, and great delicacy of execution. He accordingly confined himself chiefly to this branch of his art, producing during the last 50 years of his life an immense number of heads, and numbering among his sitters Pitt, Fox, the prince of Wales, Dr. Johnson, the duke of York, Lords Castlereagh, Erskine, Egremont, and Liverpool, Canning, Perceval, Benjamin West, and other eminent men. He also found leisure to work out a number of Venuses, Dianas, Bacchuses, and similar subjects, highly esteemed in their time, but too deficient in imagination and too evidently imitated from the antique to command much attention at the present day. Of this class of pieces he considered his "Venus anointing her Hair" his *chef d'œuvre*. He occasionally essayed monumental sculpture with success, and executed a well known statue of Pitt for Cambridge. He was of penurious habits, and amassed a fortune estimated at £200,000, the greater part of which was left to his friends Francis Palmer and Francis Douce, the antiquary. In 1772 he was elected a member of the royal academy. His life was written by his pupil, J. T. Smith (2 vols., London, 1828).

NOLLET, Jean Antoine, abbé, a French natural philosopher, born at Pimpré, near Noyon, Nov. 17, 1700, died in Paris, April 25, 1770. He studied for the church, and received deacon's orders, but devoted his life to science. In conjunction with Du Fay he made electricity the special object of his researches, being assisted by Réaumur, who gave him free access to his laboratory. He asserted that by the agency of electricity he had succeeded in making plants grow faster and produce shoots earlier. In 1739 he was elected to the academy of sciences, was subsequently appointed to a chair of experimental philosophy in the college of Navarre, and was afterward successively teacher of physics and natural history to the princes of the royal family, and professor in the military schools at La Fère and Mézières. His lectures and writings aided greatly in spreading the taste for scientific studies in France.

NOMENCLATURE, Chemical, the vocabulary of terms used in chemistry. For a science which, like chemistry, seeks to study the composition of all material substances and to classify these in accordance with the characteristic properties of their components, the importance of a uniform system of nomenclature must be apparent to every one. In truth, few events are recorded in the history of chemical science which have exerted a more beneficial influence upon its progress than the adoption of the admirable method of nomenclature brought forward by Guyton de Morveau in 1782, modified by a committee of the French academy, of which Lavoisier was chairman, in 1787, and published under the auspices of the academy in a volume entitled *Méthode de nomenclature chimique* (Paris, 1787). Several chemists had previously endeavored to improve upon the indefinite and irrational names adopted by the alchemists, and had perceived the importance of designating compound bodies by the names of their components; but no satisfactory general system had till then been devised. As has already been mentioned in the article Chemistry, the circumstances attending the introduction of Guyton de Morveau's system were such that it soon came into general use. No better evidence of its original merit can be offered than the fact that it is still employed, having undergone no essential change, although the domain of the science has been immensely increased since its introduction, and in spite of the great difference between the theoretical views now entertained and those advanced by its founders.—It should be mentioned at starting that the system of nomenclature here to be described is so intimately connected with certain theoretical views of the constitution of compound bodies, that any treatise upon it must become also in a measure a description of the methods of classification upon which it depends. The main feature of the system consists in forming in a simple and uniform manner the name of any and every compound from the names of the substances of which it is composed. The elements alone are subject to no rule, their names depending entirely upon the choice of the discoverer. It is true that the framers of the nomenclature sought in several instances to express some one prominent property of the element by means of its name, as in the case of oxygen (Gr. *οξυς*, acid, and *γενναω*, to generate), which was thought to be "a principle necessary to acidity," or hydrogen (Gr. *ὑδωρ*, water, and *γενναω*). But these attempts were confined to the elements which at that time had been recently discovered; the common names of all the well known metals, alkalies, &c., having been retained. Of the elements which have since been discovered, some have been named in allusion to striking peculiarities, as chlorine (*χλωρος*, green), iodine (*ιωδης*, violet), &c. For the most part, however, names devoid of any chemical significance have been chosen, the propriety of which course is now very generally admitted by chemists. In choosing the name of an element, it is important only that it shall be well adapted to the formation of compound names. In accordance with Davy's suggestion, the names of the more recently discovered metals have received a common termination *um*, as potassium, platinum, &c. The idea of applying some one uniform termination to each of the members of a natural group had previously been suggested by Bergman, from whom it was adopted also by the French nomenclaturists, who proposed that the names of metals should all terminate in *e*, as *platine*, *cuivre*, &c. The names of another class of elements terminate in *ine*, as chlorine, iodine, &c.—The elements are divided into two classes, metals and non-metallic bodies (metalloids). The metals all possess certain analogous characteristic properties. The class of metalloids, however, includes several quite distinct groups of elements. As a rule, those elements whose chemical properties are much alike rarely unite with each other to form well defined chemical compounds; thus the products, termed alloys, obtained by melting a metal with another which closely resembles it, are in many cases mere isomorphous mixtures, the components of which are united with but feeble affinity. It should be mentioned in passing that these cases of weak affinity have always been so many stumbling blocks in the existing system of nomenclature, and have given rise through it to one of the greatest faults of the present chemical epoch, viz.: a tendency to ignore altogether, or at best to keep out of view, all compounds which are not clearly defined, fixed, and so to say intelligible; in short, all those which cannot be readily named and classified in accordance with existing theories; and very many such have been observed even in the domain of the so called inorganic chemistry. On the other hand, the strongest affinities are generally exerted between bodies the chemical properties of which exhibit the greatest differences.—When two elements of unlike properties combine with each other, the product is termed a binary compound. Binary compounds are divided into three great classes, acids, bases, and indifferent bodies. The last have but little chemical activity. Acids and bases, however, possess unlike properties, and, although they do not combine with the elements, still manifest a great disposition to unite one with the other. Ternary compounds, or salts, are thus formed. When an acid has taken up as much of any one base as it can dissolve, it is said to be saturated, the dissimilar properties of the acid and base having neutralized each other. The resulting salt possesses new properties unlike those of its components, having usually but little affinity for other substances; but some salts can unite with others to form quaternary bodies (double salts). The distinctive properties of these several classes are by no means absolute. Indeed, there are many bodies which, according to circumstances, act either as acids or as bases: as acids when brought in contact with strong bases, and as bases toward strong acids. Those acids which are soluble in water are distinguished by their power of changing the blue color of a solution of litmus to red. Bases, on the contrary, reproduce the blue color of litmus which has been reddened by an acid. Bodies which are insoluble in water are classified in accordance with the combinations which they form with other bodies known to be acids or bases. The most characteristic salts have but little or no action on red or blue litmus, the acid and basic qualities of their components having been entirely neutralized by combination. There are, however, many exceptions to this; and in general any definite compound produced by the combination of an acid and a base is termed a salt. When a solution of a salt is subjected to a weak galvanic current, the acid and base of which it consists are separated from each other; the acid collects at the positive pole of the battery, the base at the negative pole. On the theory that like electricities repel, while unlike attract each other, it is evident that the particles of matter which are attracted to the positive pole ought to possess negative electricity, while those attracted to the negative pole should be positively electrified. The base is therefore often called the electro-positive and the acid the electro-negative constituent of the salt. The character of the respective constituents of a salt may hence be exhibited by submitting the latter to the action of galvanism. The same rule applies also to all binary compounds which can be electrolyzed. —In view of the great prominence which oxygen had attained in consequence of the experiments of Lavoisier, and of the fact that most of the acids and bases known to the founders of the chemical nomenclature contained it, or were thought to contain it, as one of their constituents, it is not surprising that especial importance was attached to this element. Indeed, its compounds form the basis of the system. The binary compounds of oxygen are, with the exception of a few indifferent substances, either bases or acids. They are called oxides, the termination *ide*, which is indicative of combination, being added to the first syllable of oxygen. Although the term oxide is generic, and would, strictly speaking, apply with equal force to any compound of oxygen with an element, it is nevertheless usually restricted to those compounds which are destitute of acid properties, viz., to the bases and indifferent bodies. Its acids are often called oxy-acids. The name of any particular oxide is formed by adding the name of its other element to this generic term; thus, the base formed by the union of oxygen and lead is called oxide of lead, that containing oxygen and potassium, oxide of potassium, &c. Lead and potassium are in these instances electro-positive elements, oxygen being electro-negative in regard to them. As a general rule, the name of the electro-negative constituent of a compound determines its genus, while that of the electro-positive constituent defines the species. The names of the basic compounds which oxygen forms with metals whose names end in *um* are often made to terminate in *a*; thus, instead of oxide of sodium and oxide of barium, the terms soda and baryta are used. Oxide of calcium furnishes the most striking exception to this rule, the common name lime being used instead of calcia. Oxygen usually combines with an element in more than one proportion, forming several bases. To distinguish these, the prefix *proto* (Gr. πρωτος, first) is applied to the oxide in which one equivalent of oxygen is united with one equivalent of the element. An oxide containing less than one equivalent of oxygen *to* one of the other element is called a sub-oxide (Lat. *sub*, under). The prefix *sesqui* (one and a half) denotes a compound in which the oxygen is *to* the other element in the ratio of 3 to 2; *deuto* (Gr. δευτερος, second) or *bin* (Lat. *bini*, two), an oxide containing two equivalents of oxygen; and *trito* (τριτος, third) or *ter* (*terni*, three), an oxide containing three equivalents of oxygen to one of the other element. The base containing the largest amount of oxygen is often called the peroxide (ὑπερ, above); thus, three compounds of the metal manganese and oxygen are distinguished as follows:

Protoxide of manganese	contains		1 eq. of manganese, 1 eq. of oxygen.
Sesquioxide of	"	"	2 eqs. of manganese, 3 eqs. of oxygen.
Bin- deut- or per- oxide of	"	"	1 eq. of manganese, 2 eqs. of oxygen.

At the time when the nomenclature was framed, it was believed that only two acid compounds could be formed by the combination of oxygen with another element. These were distinguished from each other by causing the name of the other element to terminate in *ic* for the combination containing the larger proportion of oxygen, and in *ous* for the compound containing less oxygen, the word acid being added in each case to the words thus formed. For example, two compounds of sulphur and oxygen are respectively:

Sulphurous acid,	composed	of	1 eq. of sulphur, 2 eqs. of oxygen.
Sulphuric acid,	"	"	1 eq. of sulphur, 3 eqs. of oxygen.

A compound of carbon and two equivalents of oxygen is carbonic acid, &c. It was afterward discovered that oxygen could unite with several elements in more than two proportions to form acid compounds. The prefix *hypo* (ὑπο, under) was therefore resorted to; it indicates an acid containing less oxygen than the one to whose name it is prefixed. In like manner the prefix *hyper*, or simply *per* (ὑπερ, over, above), denotes an acid containing more oxygen than the one to whose name it is attached. Thus, 5 acid compounds of oxygen and chlorine are known:

Hypochlorous acid,	composed	of	1 eq. chlorine, 1 eq. oxygen.
Chlorous acid,	"	"	1 eq. chlorine, 3 eqs. oxygen.
Hypochloric acid,	"	"	1 eq. chlorine, 4 eqs. oxygen.
Chloric acid,	"	"	1 eq. chlorine, 5 eqs. oxygen.
Perchloric acid,	"	"	1 eq. chlorine, 7 eqs. oxygen.

Of the compounds which an element may form with oxygen, those containing the larger number of equivalents of the latter are usually acids; those containing but few equivalents of oxygen are bases; while not unfrequently the intermediate degrees of oxidation are indifferent bodies. Thus, of the oxides of manganese just referred to, the proto- and sesquioxides are bases, and the bin- (or per-) oxide is an indifferent body; there are also two compounds containing more oxygen which are acids, viz.:

Manganic acid,	containing	1 eq. manganese, 3 eqs. oxygen.
Permanganic acid,	"	2 eqs. manganese, 7 eqs. oxygen.

The compounds which oxygen forms with the metals are, however, for the most part bases, those with the metalloids acids.—Many of the binary compounds of sulphur are analogous to those of oxygen. They are termed sulphides (formerly sulphurets), and as a rule correspond with the oxides. Like the latter, they may be classed as acids, bases, and indifferent bodies. Members of the first two classes, like the oxy-acids and bases, unite with each other to form sulpho-salts. They have, however, comparatively little affinity for the other elements, or for compounds not containing sulphur. The sulphur bases and the indifferent sulphides are distinguished by the same prefixes as the oxides. Thus, the three sulphides of iron are termed respectively: protosulphide of iron, symbol FeS; sesquisulphide of iron, Fe_2S_3; and persulphide of iron, FeS_2. The sulphur acids are named by prefixing the term *sulpho* to the name of the corresponding oxygen acid. Thus, the compound of carbon and sulphur analogous to carbonic acid, is called sulpho-carbonic acid. The binary compounds of chlorine and of several other elements are named in a similar manner. Thus, with the other elements, oxygen forms oxides; sulphur, sulphides (sulphurets); chlorine, chlorides; bromine, bromides; iodine, iodides; fluorine, fluorides; phosphorus, phosphides (phosphurets); carbon, carbides (carburets); nitrogen, nitrides, &c. When several chlorides, bromides, iodides, or fluorides of any one metal occur, they are distinguished by the same prefixes as the oxides. The binary compounds of these elements are, however, usually regarded, not as acids and bases, but, like the ternary oxygen compounds, as salts. This exception is one of the fruits of the too hasty assumption by the founders of the nomenclature, that oxygen was the universal acidifying principle—an error which lies at the basis of their system, and constitutes one of its greatest faults. It has since been ascertained that the metalloids in question, as well as some others, by uniting with hydrogen, form acids as energetic and as well characterized in every respect as the oxy-acids; for example, chloride of hydrogen, fluoride of hydrogen, &c. These are called hydracids. Instead of being written out in full, as they have just been given, the names of these compounds are formed by fusing together those of their constituents, as chlorhydric acid, fluorhydric acid,

&c. The synonymous names, as hydrochloric and hydrofluoric acids, are still often used, but are not in accordance with the general principle that the name of a compound must commence with that of its electro-negative component; their inaccuracy was pointed out some years since simultaneously by Thénard and the late Dr. Hare of Philadelphia. The hydracids are capable of uniting directly with basic oxides or with metals, with separation of hydrogen in either case; in the first instance the hydrogen unites with the oxygen of the metallic oxide to form water, in the latter it is evolved as gas. The compounds thus formed were at first thought to contain oxygen, the hydracids being supposed to be oxygenated, and were admitted as salts without question; indeed one of them, common sea salt, is that from which the very idea of a salt was originally derived. An attempt has since been made to refer them to the oxygen class by supposing that they constitute when in solution, not simple binaries, but compounds of the original undivided hydracid with an oxide. Thus the compound of chlorine and sodium (common salt) was at one time often called chlorhydrate (or hydro-chlorate) of soda; it being claimed that the elements of an equivalent of water had united with its constituents to form chlorhydric acid and oxide of sodium (soda). From this (conventionally admitted) property of chlorine, and the metalloids allied to it, to form salts by direct combination with metals, they have been termed halogens (salt producers; Gr. ἅλς, [sea] salt, and γεννάω), and their salts have been called haloid (from ἅλς and εἶδος, in the likeness of), to distinguish them from the oxygen salts.—The names of ternary compounds or salts, in the original acceptation of the term, are formed by combining the names of the acid and base of which they are composed, the name of the acid or electro-negative component supplying the generic, the base or electro-positive compound the specific name. If the name of the acid terminates in *ic*, this termination is changed into *ate;* if in *ous*, into *ite;* and to the words thus formed the name of the base is added. For example, sulphuric acid and oxide of lead form sulphate of the oxide of lead; sulphurous acid forms a sulphite of the same oxide; while hyposulphurous acid produces a hyposulphite, and hyposulphuric acid a hyposulphate. In like manner the compounds of nitric acid are nitrates, and those of nitrous acid nitrites of the bases with which they may be combined. When a salt contains as its base the oxide of a metal which forms but one well defined base with oxygen, its name is usually shortened by leaving out the words "of the oxide," which are always understood. Thus, it is customary to say sulphate of lead, instead of sulphate of the oxide of lead; nitrate of potassa, instead of nitrate of the oxide of potassium. In case more than one basic oxide of the same element is capable of combining with acids, the distinguishing prefix of each is retained in the name of its salts; as sulphate of protoxide of iron, and sulphate of sesquioxide of iron. These salts are also often called respectively protosulphate and persulphate of iron, the prefixes being understood to refer to the degrees of oxidation of the metal. As the number of salifiable oxides of any element is rarely if ever greater than two, it was proposed by Berzelius to distinguish them in some cases, like the acids, by the terminations *ous* and *ic*. The two oxides of iron he called ferrous oxide and ferric oxide respectively, and the salts just mentioned ferrous and ferric sulphate; and so with the oxides of various other metals. These changes are very convenient in certain cases, and for these they have been extensively adopted. In this instance, however, as in many others, the ill-advised attempts of some authors to generalize a system which is of convenient application only in a few special cases, have tended to create confusion. As a rule, the nomenclature of each special branch of chemistry will exhibit its own peculiar tendency, and all that the writers of text books can do is to choose that portion of each branch which is the best known or the most convenient. The history of the science has already proved again and again that all attempts to force an arbitrary nomenclature into general use must fail. Witness for example several of the attempts of Berzelius, the efforts of L. Gmelin, and of many others.—It often happens that an acid can combine with the same base in several different proportions. Of the salts thus formed, one is called neutral, or more properly normal, since the definition now depends upon some one constant relation in which the oxygen of the acid stands to that of the base for the salts of each individual acid, and not at all upon any lack of acidity or alkalinity; those containing more base than this are termed basic, and those containing less, acid salts, as basic chromate of lead, neutral chromate of lead, &c. The term neutral or normal is not usually expressed, being understood to belong to any salt which is characterized neither as basic nor as acid. Acid salts are often called collectively super-salts, and basic salts sub-salts; and when but one acid or basic salt of any oxide exists this may also be designated as the super- or sub-salt of that oxide, as the case may be: but these terms have often been used erroneously as with the normal carbonates of soda and of potassa, which are frequently called sub-carbonates. When several acid salts of any one base occur, they are distinguished from each other by the Latin prefixes *bi*, *ter*, &c., which are attached to the name of the acid; thus monochromate (or simply chromate), bichromate, and terchromate of potassa. When several basic or sub-salts occur, they are usually distinguished by prefixing the terms bibasic, sesquibasic, terbasic, &c., to the name of the salt. Thus, 5 acetates of lead are known. monobasic (or normal) acetate of lead, symbol

$PbO\,\bar{A}$; bibasic do., $(PbO)_2\,\bar{A}$; sesquibasic do., $(PbO)_3\,\bar{A}_2$; terbasic do., $(PbO)_3\,\bar{A}$; sexbasic do., $(PbO)_6\,\bar{A}$. It has also been proposed to denote the amount of base in a sub-salt by prefixing to its name the Greek numerals *dis* (twice), *tris* (thrice), *tetrakis* (4 times), &c., in contradistinction to the Latin ones used for acid salts. Thus, instead of bibasic acetate of lead, the term diacetate of lead would be used; instead of terbasic acetate of lead, trisacetate of lead, and so on. These terms have, however, never been generally adopted, though still frequently used and well understood. Many oxides act as bases under certain circumstances, as acids under others; they may have therefore two different names. Thus the oxide of aluminum when acting as a base is called sesquioxide of aluminum (or alumina); but when playing the part of an acid, it is termed aluminic acid. Water (protoxide of hydrogen) is another oxide which is either acid or basic according to circumstances; when it plays the part of an acid its salts are termed hydrates, as hydrate of potassa, &c. The principles of the nomenclature have not been carried out, however, in regard to the compounds in which it acts as a base. Several of our most common acids are such compounds; but instead of saying sulphate of water, nitrate of water, &c., they are termed hydrated sulphuric acid, hydrated nitric acid, &c.; or, oftener, simply sulphuric acid or nitric acid, terms which ought, strictly speaking, to be applied only to the anhydrous compounds. In like manner certain salts, which contain two equivalents of acid united with one equivalent of a metallic base and one equivalent of water, which ought to be regarded as double salts, are named as if they were bisalts, containing two equivalents of acid to only one of base, the water being left out of account. Thus the compound of one equivalent of water, one equivalent of potassa, and two equivalents of sulphuric acid, is commonly called bisulphate of potassa.—The names of some of the ternary sulphur compounds (sulphur salts) are formed in a similar manner to those of the corresponding compounds of oxygen; thus the compound of sulphide of sodium and sulphantimonic acid is called sulphantimoniate of the sulphide of sodium. Like the names of the oxygen salts, these are usually abbreviated. In the instance cited, the salt is commonly termed sulphantimoniate of sodium, it being understood that the latter element is united with sulphur. But this system is limited to only a few of the sulphur acids; the terms sulpharseniate, sulphantimoniate, and sulphomolybdate are well understood; but the sulphophosphates, for example, of Berzelius (MS, PS_5) have never been generally so called; indeed, A. Wurtz has not hesitated to appropriate the name for an acid discovered by himself in 1847, the formula of which is $P(O_3S_2)$, which unites with oxygen bases to form salts of the composition $3MO\,P(O_3S_2)$, and chemists have not called in question the propriety of this course. Since the Guyton-Lavoisieran nomenclature was made for the compounds of oxygen, it seems but fair that these should continue to take precedence, as they always have done.—The names of the ternary compounds of some of the other metalloids may also be formed like those of the oxygen compounds, but such a nomenclature has not been generally applied to them. They are usually regarded as double salts, and, as with the quaternary oxygen compounds, the names of both the constituent salts are expressed. Thus, as a compound of sulphate of alumina and sulphate of potassa would be called a double sulphate of these bases, or more shortly sulphate of alumina and potassa, so a compound of bichloride of platinum and chloride of potassium is called double chloride of platinum and potassium, or simply chloride of platinum and potassium. Of late, however, it is becoming customary to speak of this salt as chloro-platinate of potassium; in like manner the corresponding gold and mercury compounds are called respectively chlor-aurate and chloro-mercurate of potassium.—So long as the attention of chemists was principally directed to the consideration of inorganic compounds, the system of nomenclature just described, in spite of its numerous faults and inconsistencies, was found to be sufficiently expansive to meet all requirements. It has however failed to furnish suitable names for many new classes of compounds which have recently been discovered. This is especially true of the great variety of organic substances, with the study of which chemists of the present day are chiefly occupied. But the radical fault of the system is its intimate connection with the so called dualistic theory as just developed, which supposes all compounds to be capable of division into two prime factors, as salts into acids and bases, and these into still simpler antagonistic components; a view which is at present by no means so generally admitted as it was formerly. Owing to this cause, while every one admits the great merit of the system, while its intrinsic excellence and the valuable services which it has rendered are conceded, a feeling adverse to it is nevertheless entertained by some chemists. It is admitted, for instance, that it can hardly fail to warp the judgment and prejudice the mind of students; for since in this system theory assigns a name, so also the name expresses the theory, leading the learner to forget that the latter is a mere supposition, and to regard it as well ascertained truth. On this account, as well as from a fear of the changes which every new hypothesis may introduce, some have urged that a purely arbitrary nomenclature should be devised. Fortunate as the science would be on many accounts if theory were utterly excluded from its nomenclature, it must nevertheless be remembered that the realization of this proposition would be a mere retrogression to the confusion of names of the alchemists. The alternative seems to lie between burdening the memory with a countless multitude of badly defined names and synonymes, and allowing theory to hold a somewhat undue prominence. It need not be added how much all experience favors the latter course. The system of nomenclature in question has moreover been found to be incapable of expressing innumerable decompositions and changes which occur among complex substances. But this difficulty has been in a measure obviated by the introduction of certain written abbreviations (see SYMBOLS, CHEMICAL) and formulas, which exhibit at once to the eye the composition of bodies and the alterations to which they are subject. Indeed, since the adoption of these symbols, the name of a substance is of comparatively little scientific importance. The introduction of many names synonymous with those now used has thus been unquestionably prevented, and numerous other alterations obviated. This is a most fortunate result, since no material change in the spoken nomenclature can be made without great inconvenience. Indeed, the importance of maintaining a fixed spoken nomenclature or language, in which chemists may hold communion with the world at large, can hardly be overrated, for by means of it scientific information is far more readily imparted to technologists, and the "applications" of chemical science materially promoted. To the professed scientific chemist it might be of comparatively little moment if the nomenclature of Guyton de Morveau were suddenly replaced by some other system; but who can estimate the disturbance which such a course would create among all the dependent or allied sciences and arts? It has been well said that changes in nomenclature are like those in language; in mature age it is difficult to supplant one's native tongue, or to give up the text books studied in youth. For a similar reason many chemists, otherwise unprejudiced, believe that it is of importance to retain the dualistic theory itself as long as possible, conceiving that its practical advantages far more than counterbalance its theoretical failings.—It would be impossible to notice in this place the different theories of the constitution of bodies which have been advanced at one time or another, or to enumerate the various systems of nomenclature which have been devised, especially for organic compounds. Since no one of them has been generally adopted, it will be necessary to call attention to a few prominent features only, concerning which the greater number of chemists are in accord. Since, from their complexity, it would be impossible to name organic compounds from the names of their ultimate components, they are named much as if they were elements, somewhat at random, the terms applied to them being often derived from the names of the plants or animals, or organs, from which they were first obtained. This is especially true of the organic acids and of a numerous class of compounds termed compound radicals, which, though they contain several elements, nevertheless comport themselves like simple substances toward the elements. For example, cyanogen, a compound of two equivalents of carbon and one equivalent of nitrogen, exhibits properties closely analogous to those of the element chlorine. In general the term radical is applied to any substance which by uniting with an element can give rise to an acid or a base. Many of the more simple compounds formed by the union of compound radicals with elements or with other compound radicals are classed with the chlorine salts; as cyanide of potassium, chloride of ethyl, &c., the radical ethyl being composed of 4 equivalents of carbon and 5 of hydrogen. Some of the compound radicals acting as metals can unite with oxygen to form bases or acids, which, when combined with each other, produce salts which are completely analogous to the oxygen salts of inorganic chemistry. Thus the radicals ethyl and benzoyl, after combination with oxygen, are respectively a base and an acid, which by uniting form benzoate of the oxide of ethyl (benzoate of ethyl). In general terms it may be said that the nomenclature of organic acids, bases, and salts is similar to that of analogous inorganic substances. It is among the radicals themselves, and the numerous neutral or indifferent complex bodies of organic chemistry, that the system is at fault. Organic compounds are usually divided into natural families or groups, the generic names of which are furnished in each case by the name of some one substance which happens to be familiarly known, and to which each member of the group is in some way allied. Thus the term alcohol is applied to a large class of bodies analogous to common alcohol, each separate member of the class being designated by prefixing its specific name; as methyl alcohol (wood spirit), ethyl alcohol (common alcohol), &c. In like manner ether is the generic name of a large class of bodies of which common ether is the type. So with the terms aldehyde, mercaptan, &c.; these barbarous names are purposely cited as evidence of how important it is to exercise care in naming even what appear to be the most insignificant substances, for at any moment they may stand forth, like those just mentioned, as the types of great families. In compounds produced by substitution (see CHEMISTRY), that is, in those cases where one or more of the equivalents of an element are replaced in a compound by equivalents of other elements or of compound radicals, names are formed by prefixing to the name of the original compound that of the element or elements which have been newly introduced. The prefixes *bi*, *ter*, &c., or *di*, *tris*, *tetra*, &c., if the replacing substance possess basic properties, are used to denote those cases where two or more equivalents of any one element are substituted. Thus, acetic acid, in which one equivalent of hydrogen has been replaced by an equivalent of chlorine, is called chloracetic acid (or monochloracetic acid), when 3 equivalents of hydrogen are thus replaced, it is called terchloracetic acid. When one equivalent of hydrogen in ammonia is replaced by ethyl, the resulting compound is called ethyl ammonia, or shortly, ethylamine; when two equivalents of hydrogen are thus replaced, it becomes diethyl-ammonia (diethylamine), and so on. But each of the 3 equivalents of hydrogen in ammonia may be replaced by separate radicals, as in ethyl-methyl-amyl-ammonia. In similar cases exceedingly complicated names are often unavoidable; but such are rarely expressed without their written formulas.—Two or three common prefixes, beside those already mentioned, occur. Thus, *pyro* (abbreviated by Guyton de Morveau from the term empyreumatic, much used by the alchemists) is a distinguishing appellation of many acids obtained by means of dry distillation, as pyrogallic acid, &c. *Para* (Gr. παρα, near to) was proposed by Berzelius to indicate a strong resemblance between two compounds, as tartaric and paratartaric acids, which, though, very much alike, must nevertheless be regarded as distinct substances. *Meta* (Gr. μετα, signifying change) is also used in a somewhat similar manner. Thus, when aldehyde is kept for a long time in a closed tube, it gradually changes into two compounds, both isomeric with the original substance; one of these is called metaldehyde, and the other paraldehyde.—Many chemists have sought to apply names terminating alike to all the members of a given class. Although it is not easy to carry out this principle in detail, it has nevertheless been successfully applied to the names of several classes of compound radicals which terminate in *yle*, or simply *yl*, as ethyl, methyl, &c. The names of the alkaloids also, and in general of bases which are not radicals like ethyl, terminate in *ine*, as strychnine, morphine, and the like. Special instances like these and exceptions in any number might be cited, but are hardly of sufficient general interest to be mentioned in this place. While chemical classification and the details of chemical nomenclature, like those of any other language, must of necessity change in accordance with the new facts and theories which are continually brought forward as the science advances; while the nomenclature will doubtless sooner or later free itself from the trammels which the theory of Lavoisier has imposed upon it; its most important features will nevertheless be retained; a rational method of forming the names of compounds from those of their constituents, and a uniform system of terminations, being advantages which the cultivators of chemical science can never consent to lose.

NOMINALISM, REALISM, and CONCEPTUALISM, three prominent and conflicting doctrines of the scholastic philosophy. According to the first, all expressions for so called universal ideas, for genera, species, and the abstract qualities of things, are mere names, articulations, *flatus vocis*, having no corresponding object, and designating no reality. They do not stand for any conception of the mind, still less for any entity out of the mind, but are merely verbal signs. Thus nominalism claimed that there is no such thing as an abstract animal or as a tree in general, but only individual animals and trees; there are in man no faculties or virtues in general, but only particular faculties and virtues; there is no beauty and no morality in general, but only beautiful objects and moral acts; there is nothing in the universe of matter or mind but separate individualities. We cannot even form a pure conception of universals, but can only think of the words which designate them. Realism, on the contrary, affirmed that universals, genera, and species are not mere figments of language, but that they have an objective existence, are incorporeal realities, are the essences or types of things, not to be confounded with the things themselves, and that to generic as well as singular terms there is a concrete corresponding entity. Conceptualism was proposed as an intermediate doctrine between these extremes. It gave to universals a logical or psychological existence as mental conceptions. The germ of this scholastic controversy is found in the ancient opposition of Platonism and Aristotelianism concerning the nature of ideas. Plato maintained *universalia ante rem*, that the world existed as a divine idea or plan before being realized, and that it still has an ideal existence in the thought of God, which it will for ever retain; that this idea or plan is disintegrated into many more or less general ideas, of classes, species, and individuals, all having an eternal reality in the divine thought; and that these ideas constitute the substance of all particular things. This Platonic theory of ideas lies at the foundation of realism. Aristotle maintained *universalia in re* or *post rem*, that particulars are the only real substances, and that general ideas are abstractions of the human reason, derived from the objects presented to its observation. This view gave rise both to nominalism and conceptualism. The discussion was formally proposed by Porphyry, in a sentence preserved by Boëthius. "I will not inquire," he says, "whether genera and species really exist, or consist only in mere intellections, whether they are corporeal or incorporeal, and whether they are separable from particular objects or coexist in them." Roscelinus, a canon of Compiègne in the 11th century, was the first to give a distinct and complete development to nominalism, stating that universals have no real existence, but are mere names by which the kind of individuals is expressed. Applying the doctrine to theology, he was accused of tritheism, since by denying the validity of abstract or general ideas he could represent the Trinity as only a nominal and unreal unity. He was therefore condemned by the synod of Soissons (1092), and obliged to retract his assertions, and nominalism from that time fell under the suspicion of the church. His chief opponent was Anselm, whose realism was of an undecided and incomplete character.

William of Champeaux was the founder of scholastic realism, maintaining that universals are the only real entities, that the germs exist essentially in all individuals, which differ from each other only in the variety of their accidents. Thus realism verged toward pantheism, as nominalism inclined to scepticism. Roscelinus favored nominalism by regarding universals as only combinations of individuals. Abelard sought to reconcile the opposing parties by advancing the doctrine of conceptualism. To attain the truth, three things, he says, must be remarked: the mind which conceives; the external individuals which are perceived; and the analogies, resemblances, and common qualities which the mind discovers in them, and which it reunites in distinct groups, of which it forms so many distinct conceptions. Thought and being are thus identified, since the mind can abstract from objects only what is essentially contained in them. He noticed the important part played by language in the formation of general ideas, without the aid of which nearly every operation of the reason would be impossible. Thus we could scarcely operate on numbers if the memory were obliged to retain separately every unity, if there were no such generalizations as scores and hundreds; still less could we deal with concrete individualities, in the attributes of which the idea of quality is added to that of quantity. Yet conceptualism rather avoided than solved the problem. It did not inquire whether beyond the understanding which conceives general ideas, beyond the individuals in which resemblances are found, there are laws, principles, a plan, which is the common source of the resemblances and the sovereign type of the ideas. He did not grasp the view proposed by modern critics of scholasticism, that universals are more than either human conceptions or concrete substances, that they are the ideas of God, or in other words the laws of which individuals are the expressions, and that individuality is but a particular application of the law. "The moderation of conceptualism," says Cousin, "secured its triumph. A few nominalists of no renown succeeded; realism was more honorably represented; but the sceptre of the schools was swayed by the new doctrine." John of Salisbury wrote "that there had been more time consumed in the discussion than the Cæsars had employed in making themselves masters of the world; that the riches of Crœsus were inferior to the treasures that had been exhausted upon it; and that the contending parties, after having spent their whole lives on this single point, had neither been so happy as to determine it to their satisfaction, nor to find in the labyrinths of science where they had been groping any discovery that was worth the pains they had taken." The Thomists and the Scotists, though disagreeing with each other, united in assailing nominalism, which had become nearly extinct, when it was revived by William of Occam, *princeps nominalium*, an English Franciscan, in the 14th century. He declared that in the mind of God there is an idea corresponding to every thing created or possible; that only individuals can be created, and that they alone imply the existence of the idea which is their type and plan; and that there can be no similar ideas of genera and species. He thus transferred reality from the ideas of universals to those of individuals, and reduced the former to abstract notions. His theory includes the principal doctrine of conceptualism. The controversy now became so violent that the doctors, according to Vives, often came to blows, not only with their fists but with clubs and swords; and Occam died in exile after having identified nominalism with the movements against the ecclesiastical theology and the policy of the papacy. Among his followers were Holcot, Rimini, Buridan, Pierre d'Ailly, Heinrich von Hessen, Nikolaus Oresmius, and Gabriel Biel; yet political influence contrived the proscription of his doctrine by Louis XI. (1478), the masters being forbidden to teach it, and the books which favored it being ordered to be given up to the president of the parliament or chained in the public libraries. The proscription was removed in 1481, and the nominalists flourished in France and Germany, while realism was protected and encouraged in Italy by Pope John XXIII. Among the defenders of realism in the 14th century were Henry of Ghent, Walter Burleigh, Thomas of Strasbourg, Marsile of Inghen, and Thomas of Bradwardine. Nominalism contributed to introduce a freer spirit into speculation, and with the revival of letters and the Protestant reformation to overthrow scholasticism. The later nominalist theory of ideas has generally prevailed in modern philosophy, which however has rarely adopted the watchwords of mediæval speculation. The modern German systems of idealism, which identify being and thought, are the principal examples of a realistic tendency. —See Salaberti, *Philosophia Nominalium Vindicata* (Paris, 1651); Baumgarten-Crusius, *De Vero Scholasticorum Realium et Nominalium Discrimine* (1821); Erner, *Ueber Nominalismus und Realismus* (1842); and Cousin, *Fragments de philosophie scholastique*.

NONCONFORMISTS, a general name given to the Protestant dissenters from the church of England. They existed as early as the English church itself, and during the reign of Elizabeth were made the subjects of persecution, which did not however have the effect of shaking their allegiance to that queen. "The nonconformists," says Macaulay, "rigorously as she treated them, have, as a body, always venerated her memory." Several acts were passed against them during her reign, one of which was the act of uniformity (1558), enforcing severe penalties against any one conducting public service in any other manner than that prescribed by the "Book of Common Prayer." These enactments were neither removed nor modified during the reign of James I., and the accession of Charles only rendered the condition of the dissenting bodies more intolerable. When, however, the protectorate was established, the nonconformists enjoyed the right of worship without molestation, and Episcopacy in its turn was proscribed. The restoration witnessed the reëstablishment of the old church polity, and the revival of the penal laws against the dissenters. A new act of uniformity was passed in 1662, restoring all the ancient forms and ceremonies of the established church, and requiring that every beneficed minister, every fellow of a college, and even every schoolmaster, should declare his assent to all and every thing contained in the "Book of Common Prayer," and that no one should hold any preferment without episcopal ordination. For their unwillingness to conform to the requirements of this act, 2,000 clergymen were obliged to give up their livings, and it was at this time that the title of nonconformists came into general use. Among the oppressive laws passed against them during the reign of Charles II. were the conventicle act, inflicting severe punishments upon all who attended religious meetings not according to the practice of the church of England; the corporation act, aimed at the Presbyterians, whose strength lay in the small corporate towns; and an act requiring every one in holy orders to take an oath denying the right to take up arms against the government on any pretense whatsoever, on pain of being deprived of the privilege of teaching in schools, or of coming within 5 miles of any city, corporate town, or borough sending members to parliament. The "Declaration of Indulgence" of James II. afforded a temporary relief to the nonconformists; but it was not until the reign of William and Mary that they enjoyed any real toleration, and even from this those who denied the Trinity were excepted. After this, with occasional exceptions, milder counsels prevailed; the penal laws were one after the other repealed, and those that remained on the statute books were liberally interpreted, so that now the nonconformists are in the full enjoyment of political and religious liberty.

NONJURORS, that portion of the English clergy who, after the expulsion of James II. and the coronation of William and Mary, refused to take the oath of allegiance to their new sovereigns. Many of these had strenuously opposed the course of King James, but, as they had been prominent champions of the doctrine of passive obedience, they could not conscientiously acknowledge the authority of the new government. In consequence, 8 bishops, including Sancroft, the primate, and about 400 of the clergy, were deprived of their sees and benefices. In the house of lords an amendment to the act requiring the oath to be taken was moved and passed, providing that the clergy should be excused from taking it; but the commons steadily refused to make any such distinction in their favor, although 6 months more time was allowed to them than to laymen. In Scotland many of the extreme Presbyterians refused to take the oath, considering that their nation was bound to be governed for all time according to the "Solemn League and Covenant." These men were subsequently called non-hearers, and existed as late as the reign of George III. The subsequent lives of many of the English nonjurors were any thing but creditable, and the popular opinion in regard to them may be ascertained from the now almost forgotten play of Cibber, entitled "The Nonjuror," founded on the *Tartufe* of Molière. Some of them became identified with the Jacobites.

NONPAREIL, the painted bunting or finch (*S. ciris*, Bonap.). See FINCH, vol. vii. p. 505.

NONSUIT (L. Fr. *nonsue*, *non suist*, modern Fr. *non suit*, Lat. *non sequitur*, he does not pursue), in law, a judgment given against a plaintiff in default of evidence, or for neglect to proceed with a cause after it has been put at issue. A plaintiff may find after commencing his action that he cannot maintain it for want of evidence. In order therefore to prevent a verdict and judgment which will be not only probably unfavorable to him, but also a bar to further process upon the same cause of action, he may abandon his suit and defer its complete prosecution until he is prepared with fuller testimony; in other words, he becomes nonsuit. *Non sequitur clamorem suum*, says Blackstone; or in the similar language of the entry formerly made in England on the court record: *Non prosecutus est breve suum;* that is to say, the plaintiff has not prosecuted or followed up his complaint, he does not support his claim, or he does not keep up his clamor. The plaintiff may become nonsuit at any time before verdict, unless an exercise of his right will wrong the defendant. If he fails to appear for the trial of his cause, the crier usually in open court calls upon him to come in and prosecute it; and if he does not, he is noted upon the docket as nonsuit, the action is at an end, and the defendant recovers his costs against him. If the plaintiff has once appeared, it seems to be the English rule, and that of many of the United States, that he cannot be nonsuited except by his own consent, provided he has offered pertinent, even though it was the slightest, evidence in support of his claims. In some of the states, however, where this rule is maintained, the presiding judge recommends a nonsuit subject to the opinion of the full court. But in New York and other states, it is held to be within the power, and even duty, of the court to nonsuit the plaintiff, if in its opinion the testimony which he has offered will not authorize the jury to find a verdict for him, or if the court would set aside such a verdict as being contrary to the evidence. Yet in such a case of involuntary nonsuit the plaintiff may, upon a case made or upon a bill of exceptions, move to have the nonsuit set aside.—A nonsuit is a mere default. It does not, like judgment following upon a verdict, change the face of the matter in controversy. It leaves the parties in the same position toward each other as if no action had been brought. In submitting to it, the plaintiff does not admit that he has no cause of action; and, subject only to the probable order of court that further proceedings be stayed until the costs of the former suit are paid, the plaintiff is entitled to institute a new action at his pleasure.

NOOTKA SOUND, an inlet on the W. coast of Vancouver island, British North America, in lat. 49° 35′ N., long. 126° 35′ W. It extends 10 m. in a N. N. E. direction, and forms a number of smaller bays and coves. It communicates with the Pacific by two entrances, separated by a wooded island, and the greatest breadth of water is not more than 500 yards. The shores are rocky, and the anchorage good.

NORD, the northernmost department of France, formed chiefly from the old province of Flanders, bounded N. by the North sea, N. E. and E. by Belgium, S. by the departments of Ardennes and Aisne, and S. W. by Somme and Pas-de-Calais; area, 2,193 sq. m.; pop. in 1856, 1,212,353. The coast line is formed by a ridge of sand hillocks, and has two harbors, Dunkirk and Gravelines. The principal rivers are the Sambre, Scheldt, Scarpe, Lys, and Yser, which have been rendered navigable, and are connected with one another by 25 canals. The surface is flat, except in the S., where there are some low detached hills. The greater part of the soil is a rich alluvium, and when properly drained yields very rich crops. All the ordinary cereals are raised, beside hemp, flax, tobacco, hops, dye plants, roots, &c. Coal is found in several places. Linen, woollen goods, and cottons are manufactured; and there are iron works, founderies, and glass works. The climate is damp, and not considered healthy. Capital, Lille.

NORD, Côtes du. See Côtes du Nord.

NÖRDLINGEN, a fortified town of Bavaria, formerly an imperial free city, situated in the circle of Swabia and Neuburg, 50 m. S. W. by railway from Nuremberg; pop. 6,500. It is surrounded by walls with towers at intervals, contains a handsome Gothic church of the 16th century, with a tower 268 feet high and many fine paintings, an orphan asylum, and manufactories of linens, woollens, carpets, and leather. In 1634 a Swedish army under Gen. Horn and Bernard of Weimar was defeated here by the imperialists, commanded by Ferdinand, the emperor's son. The battle, which was one of the most important in the 30 years' war, lasted 8 hours. The Swedes lost 20,000 men, and Gen. Horn was taken prisoner. A second battle was fought in the same war near Nördlingen, Aug. 3, 1645. In 1647 the town was bombarded and partly burned by the Bavarians. Battles between the French and Austrians were also fought there in 1796 and 1800.

NORE. See Thames.

NORFOLK. I. An E. co. of Mass., having Massachusetts bay on the N. E., and Rhode Island on the S. W.; area estimated at 450 sq. m.; pop. in 1860, 108,065. It is watered by the Charles, Neponset, and other rivers. The surface is rough, and in some places hilly, and the soil strong and rocky and highly cultivated. Granite of an excellent quality is quarried at Quincy. The agricultural productions in 1855 were 150,465 bushels of Indian corn, 15,[illegible] of rye, 6,935 of barley, 12,782 of oats, 261,[illegible] of potatoes, 316,254 lbs. of butter, and 42,[illegible] tons of hay, beside a great quantity of vegetables raised for the markets of Boston and surrounding towns. There were 29 cotton, 5 woollen, 3 carpet, and 16 paper mills, 6 rolling, slitting, and nail machines, 36 forges, and 10 tanneries, beside many other manufacturing establishments. Boots and shoes to the value of $4,990,700 were manufactured. In 1855 there were 126 churches and 5 newspaper offices. The Old Colony and Fall River, the Boston and Providence, and the Norfolk county railroads traverse the county. Capital, Dedham. II. A S. E. co. of Va., bordered S. by N. C., having the mouth of James river or Hampton roads on the N., and Chesapeake bay on the N. E. corner, and drained by Elizabeth and North rivers; area, about 500 sq. m.; pop. in 1850, 33,036, of whom 10,400 were slaves. It has a level surface, and comprises a large portion of the Dismal swamp. The productions in 1850 were 307,245 bushels of Indian corn, 21,303 of sweet potatoes, and 2,[illegible] lbs. of wool. There were 10 grist mills, 5 saw mills, 2 iron founderies, 3 ship yards, 13 newspaper offices, 42 churches, and 1,[illegible] public school pupils. The county is intersected by the Seaboard and Roanoke railroad, and by the Dismal swamp canal. Capital, Portsmouth.

NORFOLK, a S. W. co. of Canada West, bordering on Lake Erie, drained by Big, Otter, and other creeks; area, 600 sq. m.; pop. in 1851, 21,281. It has an undulating surface and fertile soil; and in 1851 there were 97 saw mills, 9 fulling mills, 2 woollen factories, and 6 tanneries. The county is intersected by the Lake Erie and Woodstock railroad. Capital, Simcoe.

NORFOLK, a city and port of entry of Norfolk co., Va., on the N. bank of Elizabeth river, 8 m. from Hampton roads, 32 m. from the ocean, and 106 m. by land and 160 by water S. E. from Richmond; lat 36° 50′ 50″ N., long. 76° 18′ 47″ W.; pop. in 1854, 16,500; in 1850, 14,605, of whom 3,280 were slaves. Its elevation is low. The streets are generally wide, but irregularly laid out, and the houses are built of brick and stone. Among the principal buildings are the city hall, having a granite front and a cupola 110 feet high, the Norfolk military academy, mechanics' hall, and Ashland hall. There is a beautiful cemetery, handsomely laid out and adorned with cypress trees. The city contains a court house, gaol, custom house, 3 banks, and 14 churches. The new custom house and the buildings of the farmers' and exchange banks are elegant structures. It has a fine harb easily accessible and safe, admitting the largest vessels. The entrance is defended by Forts Calhoun and Monroe. In the vicinity, at Gosport, is a U. S. navy yard with a marine hospital. The yard contains a dry dock constructed of granite at a cost of $974,536. The foreign commerce of Norfolk exceeds that of any other place in the state. The entrances for the year ending June 30, 1859, were 121 vessels, tonnage 62,159; clearances, 123 vessels, tonnage 25,273; tonnage of the district, which includes Portsmouth on the opposite side of the river, 25,728. The supplying the northern cities with early fruits and vegetables has become an important trade, and is said to reach from $250,000 to $500,000 annually. The city was laid out in 1736, and was burned in 1776 by the British. It is now the second city in importance and population in the state. With New York and Philadelphia it communicates by regular lines of ocean steamers. The city was severely visited by the yellow fever in 1855, losing between 1,000 and 2,000 inhabitants directly and indirectly.

NORFOLK, a maritime co. of England, bounded N. and N. E. by the North sea, S. E. by Suffolk, W. by Cambridge, and N. W. by Lincoln and the Wash; area, 2,116 sq. m.; pop. in 1851, 442,714. The coast consists of cliffs, partly chalk, which the sea is gradually undermining, and several villages at different periods have been swept away. The surface is generally flat, except in the N., where it is undulating. The soil is light, and there is little woodland; but no county in the kingdom has made greater progress in agriculture. The principal rivers are the Great and Little Ouse, Nen, and Yare. The climate on the E. coast is dry throughout the year, and in winter and early spring cold penetrating winds prevail. The crop raised in greatest perfection in Norfolk is barley, most of which is made into malt and exported. Turnips are also raised in great abundance. The stock of sheep amounts to about 800,000 head; much poultry is raised for the London market. There are valuable fisheries of herrings and mackerel. Woollen manufactures, especially of worsteds, are largely carried on. Norfolk sends 12 members to the house of commons, 4 for the county, 2 for the city of Norwich, and 2 each for the boroughs of King's Lynn, Thetford, and Yarmouth.

NORFOLK, DUKE OF. See HOWARD, THOMAS.

NORFOLK ISLAND, a dependency of the British colony of New South Wales, in the S. Pacific ocean, 900 m. E. N. E. from Sydney, in lat. 29° 10′ S., and long. 167° 58′ E. It is the largest of a small cluster consisting of Norfolk, Nepean, and Philip islands, together with several islets, or rocks, called the Bird islands. It is about 5 m. long, with an average breadth of 2½ m.; area, about 9,000 acres. Its general elevation is 400 feet above the sea, except on the N. W. corner, where Mt. Pitt rises to the height of 1,050 feet. The surface is very uneven, and the coast high and precipitous. The small streams which occupy the ravines in winter fall in cascades, 30 to 50 feet high, into the sea. The soil is fertile. The principal tree is the Norfolk island pine, which grows to a very great size, but the wood is of little use except for building purposes. Maple, ironwood, a small species of palm, a gigantic fern having fronds 11 feet in length, the lemon, guava, banana, yam, sweet potato, and arrowroot grow luxuriantly; and oranges, coffee, maize, and wheat may be raised. The climate is healthy and very agreeable. Horses, horned cattle, sheep, and other domestic animals have been introduced.—Norfolk island was discovered by Capt. Cook in 1774, and in 1787 was colonized by convicts and freemen from New South Wales; but it was abandoned in 1810, and all the buildings were destroyed. In 1825 it was made a penal establishment for the safe keeping of incorrigible offenders from among the convicts of New South Wales, for which, as there are only two spots where a landing can be effected, and there even with danger, it was thought peculiarly well adapted. At one time the number of prisoners was more than 2,000; large prisons and other buildings were erected, roads and various improvements were made, and a strong military guard was stationed at the place to keep order and prevent escape; notwithstanding which many convicts made their way to various South sea islands. After the colonists of New South Wales refused to permit any more convicts to be landed in that country, the establishment on Norfolk island became no longer necessary, and it was abandoned in 1856. The island was then given by the British government to the inhabitants of Pitcairn island, the descendants of the mutineers of the Bounty, 194 in number, who took possession in that year; and though some of these have since returned to Pitcairn, the population by last accounts amounted to 202.

NORICUM, a province of the Roman empire, in S. E. Germany, bounded N. by the Danube, E. by Mt. Cetius (now Kahlenberg), which separated it from Pannonia, S. by the Savus (Save) and Mt. Ocra (Terglou), and W. by the Ænus or Œnus (Inn), which separated it from Vindelicia and Rhætia. It thus comprised the whole of the modern province of Upper Austria, almost the whole of Lower Austria, Styria, and Carinthia, and parts of Carniola, Saltzburg, and Bavaria. The principal rivers, beside those already mentioned, were the Anisus (Enns), Murus (Mur), Dravus (Drave), and Juvavus (Salza). The most important range of mountains was the Noric Alps, in the neighborhood of Saltzburg, where excellent iron was mined. Noricum had also some gold mines. The chief towns were: Noreia or Noreja (Neumarkt in Styria), from which the name of the province was derived, the capital of the Taurisci or Norici before the Roman conquest, and the place where Carbo was routed by the Cimbri in 113 B. C.; Juvavia (Saltzburg), a colony of Hadrian, on the Juvavus; Lentia (Lintz), on the Danube; and

Lauriacum (Lorch), at the mouth of the Anisus. Noricum was conquered by the Romans toward the close of the reign of Augustus, and at a later period was divided into two provinces: Noricum Ripense, adjoining the Danube, and Noricum Mediterraneum, S. of the former.

NORMAL SCHOOLS (Lat. *norma*, a carpenter's square; hence, a rule or pattern), establishments for the education of teachers. The first institution worthy of the name of a normal school was organized in Stettin, Prussia, in 1735. Frederic the Great established a second in Berlin in 1748. Another was opened in Hanover in 1757, and others soon followed in various parts of Germany. Since the beginning of the present century, training schools for teachers have been rapidly multiplying in number, and advancing in the requisites for admission. The course of instruction is now generally extended to 3 or 4 years. In some of the German states the great majority of the teachers are graduates of the normal schools. The first seminary for teachers in France was established in 1810, and the first in Holland in 1816; and since that time they have been introduced into the other principal countries of Europe. There are now more than 90 normal schools in France, 40 in England, nearly 50 in Prussia, 18 in Switzerland, and a proportionate number in Saxony, Hanover, and Bavaria. Sardinia has lately established normal schools, including one for females, and inaugurated an excellent system of public instruction. Through the influence of the Rev. J. H. Hill, D.D., an American missionary for 30 years in Athens, a normal school for females has been established and is liberally supported by the government of Greece. A seminary for training female teachers has also been opened in Belgium.—To Prof. Denison Olmsted seems to belong the credit of first publicly advocating in America the necessity of a seminary for the training of teachers, in an oration delivered in New Haven, in 1816, "On the State of Education in Connecticut." In 1825 there appears to have been an almost simultaneous though unconnected movement for a normal school on the part of several prominent friends of education. Gov. De Witt Clinton, in his message to the legislature of New York in 1825, recommended a seminary for teachers, and repeated the recommendation the next year, with a plan contemplating the expenditure of $200,000 for buildings alone. The same year James G. Carter of Massachusetts and the Rev. Thomas H. Gallaudet of Connecticut each called public attention to the necessity of normal schools, in a series of newspaper articles. The "United States Review," edited by Theophilus Parsons, strongly commended these essays and their object to popular favor; and in 1827 Prof. Ticknor gave an outline and an earnest advocacy of their plan in an article in the "North American Review." The same year a memorial on the subject was presented to the legislature of Massachusetts by J. G. Carter, and his efforts were warmly seconded by Messrs. Emerson, Brooks, Woodbridge, Russell, Stowe, and others. Ten years later the American institute of instruction memorialized the legislature in behalf of a normal school and a board of education. On the recommendation of Gov. Everett the board of education was established. Its first secretary, Horace Mann, and all its members were the earnest advocates of normal schools. In 1838 Mr. Edmund Dwight offered the sum of $10,000 for the purpose of establishing a normal school, on the condition that the state should appropriate an equal amount for the same purpose. Accordingly the first normal school in America, that now established at Framingham, was opened at Lexington, July 3, 1839. Two others were soon opened, and 4 are now supported by the state of Massachusetts, the whole number of persons ever connected with which is 5,271, and they have 2,535 alumni. New York established a normal school at Albany in May, 1844, and now appropriates $12,000 annually for its support, which, with the income from the model school of over 100 pupils ($2,600), makes this one of the most liberally sustained institutions of the kind in the country. The whole number of pupils who have been connected with the school is 2,408, of graduates 1,158, and of present pupils 232. The normal school in Toronto, C. W., was opened in 1847; it has fine buildings, is very liberally supported, and has a model school of 400 pupils; the whole number of those instructed in the normal department is 2,806, of whom 1,430 have received certificates. The Michigan normal school was legally established in 1849, and went into operation at Ypsilanti in 1853; it has had in all 1,200 members, and the present number of pupils is about 300. The commodious edifice, burned in 1859, is now rebuilding. Connecticut opened a normal school in New Britain in 1850, at first as an experiment for 5 years; its whole number of members is 1,744, of whom 138 have completed a 3 years' course, and it now has more than 500 pupils. A private institution for the training of teachers was opened at Providence, R. I., in 1852, which was adopted as a state normal school in 1854; it is now established at Bristol; whole number of pupils 506. The normal school of New Jersey was established at Trenton in Oct. 1855; it has superior buildings, is liberally supported, and has had 855 members and 146 graduates. The Illinois normal university went into operation in Feb. 1857, and has 150 members; the edifice, now nearly completed, promises to be the most magnificent building of the kind in the country. Another was opened in Charleston, S. C., in May, 1859; it is supported at an annual cost of $10,000. In December of the same year one was legally "recognized" at Millersville, Penn., with accommodations for 300 members, and a hall that will seat 1,000 persons. Pennsylvania is now about to establish other schools of the same kind. During the winter of 1860 another was established in Winona, Minnesota. Iowa connects a normal school with her state university. Wisconsin is now aiming to organize normal classes under the direction of the board of education in all her high schools, academies, and colleges, "to establish normal classes at two or more points of the state for a professional course for teachers already engaged in teaching, and to crown the whole by a central normal school." In 1860 Maine made appropriations to secure a normal department in certain existing academies. The attempt to engraft normal departments upon existing schools was long since made in some parts of Germany, but failed. In opposition to the counsel of Gov. Clinton the same experiment was tried for several years in New York. "This attempt," says Horace Mann, "was one of the most unfortunate movements ever made in this country in regard to education." The same error was made in Kentucky, but it was continued less than two years. Normal schools are also established in the cities of Boston, New York, Brooklyn, Newark, Philadelphia, St. Louis, and others; in Charlottestown, Prince Edward's island; in St. John's, New Brunswick; in Truro, Nova Scotia; and in Valparaiso, Chili; and one is soon to be opened at Madura, India. A private normal school is maintained at Lebanon, Ohio.—The "American Normal School Association" originated in a convention held in New York city, Aug. 30, 1855; and annual meetings have since been held in Springfield, Mass. (1856), Albany, N. Y. (1857), Norwich, Conn. (1858), Trenton, N. J. (1859), and in Buffalo, N. Y. (1860). In view of the recent origin and rapid increase of normal schools, an association for professional improvement was deemed essential by their instructors. Many fundamental points in reference to the distinctive character and specific aim of normal schools, the science of education, methods of instruction, terms of admission, curriculum of study, length of the course, prominence to be given to the theory and art of teaching, and the forms of general exercises, still demand investigation. The discussion of these and kindred questions, collating the results derived from the varied experience of those actually engaged in these schools, has already rendered a valuable service to the progress of normal school instruction. The proceedings of the convention held at Trenton in Aug. 1859, have been published in a volume containing plans and elevations of some of the principal normal school buildings in the country.

NORMANDY, an ancient province in the N. W. of France, extending along the English channel, from a point S. of the mouth of the Somme to the bay of Cancale, washed on the N. and W. by the sea, and bounded E. by Picardy and Isle-de-France, from which it was partly divided by the Bresle, the Epte, and the Eure, and S. by Perche, Maine, and Brittany, the upper Sarthe and the lower Couesnon forming a part of the dividing line. The Gallic hordes or nations who originally occupied this territory were subdued by the Romans, who included it in the province of Lugdunensis Secunda. It was comprised within the limits of Neustria under the domination of the Merovingian kings, and received the name of Normandy from the Northmen, who occupied it in the beginning of the 10th century. By the treaty of St.-Claire-sur-Epte, in 912, Charles the Simple gave his sanction to the conquests made by the Northmen, and Rollo, their chief, received the title of duke of Normandy. The new duchy soon became one of the most prosperous provinces of France, and its inhabitants bore a prominent part in many great events that marked the middle ages. Robert the Devil, or the Magnificent, the 5th successor of Rollo, is the hero of many legendary tales; and his son, William the Bastard, became in 1066 the conqueror of England. Several years before this adventurous knights from Normandy, William Bras de Fer, Robert Guiscard, and Roger, the sons of a simple baron, Tancred of Hauteville, had subdued the southern part of Italy and prepared for the establishment of the kingdom of the Two Sicilies. Many others bore a prominent part in the crusades. On the death of William the Conqueror, England and Normandy were separated, the latter falling to the lot of Robert Courteheuse, while William Rufus seized upon the former. Henry I. Beauclerc ruled over both, but his daughter Matilda was only duchess of Normandy. Her son, Henry II., accomplished another reunion which lasted until the reign of King John. This prince, in his capacity of vassal of the French king, was summoned before the court of peers at Paris, on the charge of having murdered his nephew Arthur of Brittany, and sentenced to forfeit his duchy. This was forthwith seized upon by King Philip Augustus; but it was twice again held by the English, first under Edward III., and a second time, from 1417 to 1450, under Henry V. and Henry VI. The gallant Dunois, during the reign of Charles VII., finally rescued it from foreign control; and although the title of duke of Normandy was still occasionally used, the duchy thenceforth was an integral portion of the kingdom of France. Amid all these revolutions, the Normans had lost nothing of their energy and enterprise. While improving their lands at home and carrying on an active traffic with the neighboring countries, they had, as early as the 14th century, established trading posts on the coast of Africa, and at the beginning of the 15th taken possession of the Canary islands under Jean de Bethencourt. During the 16th century they extended their maritime expeditions, discovered the St. Lawrence, and attempted to colonize its banks. They founded Quebec in 1608, had settlements in Brazil in 1612, visited the southern islands of Malaysia in 1617, and settled in Guadeloupe in 1635. Subsequently Normandy contented itself with being one of the best cultivated and most industrious provinces in France; the cloths of Elbeuf and

Louviers, as well as the lace of Alençon, enjoy an excellent reputation. The province was sometimes assisted in its improvements by royal protection. It was indebted to Francis I. for the foundation of Havre, while Louis XVI. vigorously continued the great works that had been begun at Cherbourg by Louis XIV. The political part of Normandy in the revolution was important; it was here that the Girondists attempted to rise in arms against the convention; and it was from Caen that Charlotte Corday started for Paris to rid France of Marat. Normandy has contributed much to French literature. During the middle ages the Norman trouvères held a high rank as poets; and in modern times Malherbe, Corneille, Mézeray, Fontenelle, Vertot, Bernardin de St. Pierre, and Casimir Delavigne, beside Laplace and Vauquelin among scientific men, Poussin and Jouvenet among painters, and Boïeldieu among musicians, were natives of the province. Normandy has lost nothing of its prosperity since its division in 1790 into the 5 departments of Orne, Seine-Inférieure, Calvados, Eure, and Manche. It was anciently styled the *pays de sapience*, on account of the shrewd and money-making character of its people.

NORMANS. See NORTHMEN.

NORRIS, EDWIN, an English ethnologist and philologist, born in Taunton, Oct. 24, 1795. From 1826 till 1836 he held a situation in the East India house. In 1836 he was elected assistant secretary to the royal Asiatic society, of which in 1856 he became principal secretary, and in 1847 was appointed by government translator to the foreign office. His reputation rests chiefly on articles which have appeared in the "Transactions" of the Asiatic society, among which the most noteworthy are the following: "On the Kapur-di-Giri Rock Inscription;" "On the Assyrian and Babylonian Weights;" and "On the Scythic Version of the Behistun Inscription." He is the editor of the "Ethnographical Library," begun in 1853, and has superintended thé publication of several ethnological and philological works. He has been engaged with Sir H. L. Rawlinson in preparing for the press the series of Nineveh inscriptions, to be published under the authority of the trustees of the British museum. His last work is "The Ancient Cornish Drama, edited and translated" (Oxford, 1859).

NORRIS, JOHN, an English clergyman and author, born in Collingborne-Kingston, Wiltshire, in 1657, died in Bemerton in 1711. He was graduated at Exeter college, Oxford, in 1680, and shortly afterward, obtaining a fellowship of All Souls', devoted himself to philosophy, and became a disciple of the French Platonist, Father Malebranche. In 1682 he published his first work, "The Picture of Love Unveiled," a translation of the *Effigies Amoris* of Robert Waryng, and in the same year a translation from the Greek of "Hierocles upon the Golden Verses of Pythagoras." His first original work, entitled "An Idea of Happiness" (1683), at once gave him a position in the ranks of the Platonic divines of the 17th century. The Rye house plot of 1683 led him to attack the whigs in a treatise entitled "A Murnival of Knaves, or Whiggism Displayed and Burlesqued out of Countenance." Soon afterward he published a Latin work against the theology of the Genevan divines, and followed it up in 1691 by a special treatise against the nonconformists, charging them with schism. In 1684 he took orders, and in the same year published his "Miscellanies" in prose and verse. At this time he began with Dr. Henry More, who had just won fame as a Platonic mystic, a correspondence in regard to some speculative difficulties, which lasted 8 years, and was published in 1688. In 1685, with Francis Digby, he produced a translation of Xenophon's *Cyropædia*, and in 1688 published "The Theory and Regulation of Love," in which he eloquently defended Platonic affection. In 1689 he became rector of Newton St. Loe, in Somersetshire, published the same year a treatise on "Reason and Religion," and in 1690 "Reflections upon the Conduct of Human Life," in a letter to Lady Masham. In 1692 he attacked the views of the Quakers, and was shortly after made rector of Bemerton near Salisbury, where he remained till his death. His duties being light, he wrote with still greater ardor; in 1698 he finished 4 volumes of "Practical Discourses," and in 1695 gave to the world his "Letters concerning the Love of God." The deist John Toland having written a treatise entitled "Christianity not Mysterious," Norris published in 1697 in answer, "An Account of Reason and Faith, in relation to the Mysteries of Christianity," in which he clearly distinguished the respective provinces of reason and faith. From the first he raised his voice against the philosophical theories of Locke, and in an appendix to his "Treatise of Christian Blessedness" he made some strictures on the "Essay on the Human Understanding." In 1701 he published in defence of idealism a work entitled "An Essay toward the Theory of the Ideal or Intelligible World," of which the second part appeared in 1704. By this work he is best known to philosophical students. In 1708 he published a treatise on the "Natural Immortality of the Soul," in answer to Dodwell; and this, with the exception of a few minor productions, may be regarded as his last work, his health giving way under his labors.

NORRISTOWN, a post borough and the capital of Montgomery co., Penn., situated on the N. bank of the Schuylkill river, 91 m. E. from Harrisburg and 16 m. N. W. from Philadelphia, with which it is connected by railroad; pop. in 1860 about 10,000. The streets are laid out at right angles and well paved, and the houses are built in a neat, substantial manner, of brick and native marble. The borough contains a handsome county gaol, a bank, a public library, 13 churches, 4 large public schools, several extensive cotton and woollen factories, rolling mills, founderies, furnaces, machine shops, nail mills, oil mills, brick yards, and other manufactories, 1 German and 4 English newspaper offices, and 3 boarding schools, 2 of which have large and elegant edifices occupying high ground in the eastern part of the town. The new court house, finished in 1855, is built of the light gray native marble, and cost over $200,000; it is one of the finest and best buildings of its class in the United States. The Schuylkill river is crossed by two substantial covered bridges, about 800 feet in length, leading into Bridgeport on the opposite bank. Water and gas are conveyed through the borough in pipes. Norristown is the E. terminus of the Chester valley railroad, which intersects the Columbia railroad at Downingtown, 22 m. distant. The improved navigation of the Schuylkill affords facilities for the trade of the town, which is active and increasing. The Reading railroad, on the opposite bank of the river, opens a ready communication to the coal mines of Schuylkill co.; and a railroad is in progress from Norristown to Allentown in Lehigh co. The borough was incorporated in 1812, and enlarged in 1853.

NORRLAND, Wester. See Hernosand.

NORSE (from the Danish *Norsk*, Norwegian), a word improperly applied by English writers to the Icelandic or ancient Scandinavian language and literature. (See Iceland, Language and Literature of, and Norway, Language and Literature of.)

NORTH. I. Sir Thomas, knight, an English author, 2d son of Edward, 1st Baron North, born about 1535, died subsequent to 1579. He published in 1579 a translation of "Plutarch's Lives," made from the French version of Amyot, and which was the first that appeared in England. Accompanying it were lives of other eminent men of Greece and Rome, collected from various sources, and the whole work was dedicated to Queen Elizabeth. He also published English versions of Guevara's *Horologium Principium* (fol., London, 1557), and Doni's *Filosofia morale* (fol., London, 1570). Beyond the record of his literary productions there is no account of his life. II. Sir Dudley, an English merchant, the 3d son of Dudley North, 4th Baron North of Kirtling, born May 16, 1641, died Dec. 31, 1691. After an education suitable to a mercantile career, he was bound an apprentice to a Turkey merchant, by whom he was sent to Smyrna as a factor. He subsequently took charge of a factory in Constantinople, and by a careful attention to his business, and a shrewd employment of his knowledge of the artifices of trade as well as of the peculiarities of the oriental character, amassed a fortune, with which in 1680 he returned to England. His experience in commercial affairs soon brought him into notice; and after serving as sheriff of London and alderman, he entered parliament in 1685 as member for Banbury, in which capacity he conducted the financial business of the lower house in behalf of the lord treasurer. He was an unscrupulous adherent of the tory party, and brought himself into considerable disfavor by carrying a tax on tobacco and sugar. At different times he held the offices of commissioner of the customs and of the treasury. A few months before his death he published his "Discourses on Trade," a work highly praised by McCulloch, and the principal literary effort of his life. He has been characterized by Lord Macaulay as "one of the ablest men of his time," and as one in whom the government found "at once an enlightened adviser and an unscrupulous slave." III. Roger, brother of the preceding, born Sept. 3, 1651, died in 1733. He studied law in the Middle Temple, and became steward of the courts to Archbishop Sheldon. The statement that he was also attorney-general under James II. needs verification. He is chiefly known by his lives of his brothers, the lord keeper Guilford, Sir Dudley North, and Dr. John North, master of Trinity college, Cambridge, published after his death (2 vols. 4to., 1740-'2), and republished in 1826. He also wrote an "Examen" into the credit and veracity of Dr. White Kennett's "Complete History of England," a partisan work, but valuable for the insight it affords into the social and political condition of England under Charles II.; and left in manuscript "Memoirs of Music," commended by Dr. Burney, and which has been published by Dr. Rimbault (4to., London, 1846). Macaulay calls him "a most intolerant tory, a most affected and pedantic writer, but a vigilant observer of all those minute circumstances which throw light on the dispositions of men." IV. Francis, Lord Guilford, lord keeper of the great seal, brother of the preceding, born Oct. 22, 1637, died Sept. 5, 1685. He was educated at St. John's college, Cambridge, was called to the bar of the Middle Temple in 1661, and for several years travelled the Norfolk circuit. From the outset of his career he was indefatigable in his law studies, and, with a sort of dogged determination to achieve wealth and distinction at any sacrifice, he abstained from the ordinary pleasures of youth, and left untried no artifice and scrupled at no humiliation which would subserve his purposes. Sir Jeffrey Palmer, the first attorney-general under the restoration, early assisted him in getting into practice; and by "keeping fair with the cocks of the circuit," as his brother Roger North relates, "and particularly with Sergeant Earl, who had almost a monopoly," he became one of the leaders of the Norfolk circuit, and was soon retained in every important cause. Gaining the favor of the court by pleading against the privileges of parliament in the case of the prosecution of the 5 members, which had been brought into the house of lords on a writ of error from the court of king's bench, he was in 1671 appointed solicitor-general and knighted; and in Nov. 1673, he succeeded Sir Heneage Finch as attorney-general. In Jan. 1675, he was made chief justice of the court of common pleas, in which position he conducted to a successful issue a dispute between his court and that of the king's bench as to the character and extent of the jurisdiction claimed by each. In 1679 he was admitted a member of the new council established by the king; and upon the retirement of Lord Nottingham in 1782, he was made keeper of the great seal. In Sept. 1683, he was created Baron Guilford of Guilford, Surrey. Throughout his judicial career he favored the prerogative, in accordance with the strong tory leanings of his family, and as a means also of advancing his own interests, of which he never lost sight; but toward the close of his life he suffered in political influence from the ambition and insolence of Jeffreys, and died broken down in spirit. His character and professional attainments are highly extolled by Roger North in his lives of the Norths; but according to Macaulay, this biographer, though under the influence of the strongest fraternal partiality, "was unable to portray the lord keeper otherwise than as the most ignoble of mankind." The same authority adds: "The intellect of Guilford was clear, his industry great, his proficiency in letters and science respectable, and his legal learning more than respectable. His faults were selfishness, cowardice, and meanness." Yet he had the courage shortly before his death to remonstrate with the king upon the dangers inseparable from his violent and arbitrary measures. He was the author of some scientific and miscellaneous papers, and of a few political essays published in his life by Roger North. V. Frederic, 2d earl of Guilford, better known by the title of Lord North, great-grandson of the preceding, and son of the 1st earl of Guilford, born April 13, 1733, died Aug. 5, 1792. He was educated at Eton and at Trinity college, Cambridge, made a lengthened tour on the continent, and in 1759 was appointed a commissioner of the treasury in the Pitt ministry. He entered parliament in 1761 from the family borough of Banbury, which he represented continuously for nearly 30 years. In 1763 he directed the proceedings which led to the expulsion of Wilkes, and in the same year supported the American stamp act and the right of the mother country to tax the colonies. Upon the formation of Lord Chatham's second ministry in 1766 he was appointed, jointly with Mr. George Cooke, paymaster of the forces, having refused to accept office under the previous Rockingham administration. Gaining in reputation and confidence as a legislator, he was appointed chancellor of the exchequer in the duke of Grafton's ministry, and upon the death of Charles Townshend assumed the position of leader in the house of commons. On the resignation of the duke of Grafton in 1770 he relieved the king from the embarrassment in which this event involved him by accepting the office of premier, and was rewarded by the unwavering attachment and support of his royal master, continued through many years. His administration, extending from Jan. 1770, to March, 1782, in the language of an English writer, "teemed with calamitous events beyond any of the same duration to be found in our annals;" the American war being its great feature, and the efforts of the minister being directed principally to measures for the coercion of the revolted colonies. With the popular feeling against him, and an opposition in the house of commons unsurpassed in brilliancy of intellect and legislative ability, Lord North nevertheless for upward of 6 years contended almost single-handed with his parliamentary adversaries, repelling personal attacks, the most brilliant rhetorical displays or the bitterest shafts of satire, with imperturbable good nature, and a tact and readiness of wit which Burke once confessed exceeded that of the entire opposition. Although he never wavered in his opinion of the right of parliament to tax the colonies, it appears from the statement of his daughter, Lady Charlotte Lindsay, that during the last 8 years of his administration he entertained serious doubts as to the expediency of continuing the war, and was induced to persevere in the contest only in deference to the wishes of George III. Defeated in the house of commons on the question of the continuance of the war, he resigned office, and, after the short-lived administration of the marquis of Rockingham, joined his old antagonist, Fox, in breaking down that of Lord Shelburne which succeeded. In April, 1783, he returned to office as a joint secretary of state with Fox in the "coalition ministry" formed by the duke of Portland, the unpopularity of which caused its dissolution in the succeeding December. Soon afterward he retired definitively from public life. During the last 5 years of his life he was afflicted with total blindness, but endured this misfortune with unvarying cheerfulness. He succeeded to his title of earl of Guilford only two years before his death. Although a fluent and accomplished debater, he occupies a low rank as a statesman, having succeeded by a skilful distribution of official emoluments, rather than by any remarkable administrative ability, in retaining himself and his friends in power, and having failed during the 12 years that he held the premiership to originate a single measure entitling him to the gratitude or admiration of the English people. Burke has thus delineated his character: "He was a man of admirable parts, of general knowledge, of a versatile understanding, fitted for every sort of business: of infinite wit and pleasantry; of a delightful temper, and with a mind most disinterested." Gibbon, in the preface to his great history, says of him: "Were I ambitious of any other patron than the public, I would inscribe this work to a statesman, who, in a long, a stormy and at length an unfortunate administration, had many political opponents, almost without a personal enemy; who has retained, in his fall from power, many faithful and disinterested friends; and who, under the pressure of severe infirmity, enjoys the lively vigor of his mind and the felicity of his incomparable temper."

NORTH CAPE. See CAPE NORTH.

NORTH CAROLINA. See CAROLINA, NORTH.

NORTH CAROLINA, UNIVERSITY OF, an institution of learning at Chapel Hill, Orange co., N. C. It was incorporated in 1789, Samuel Johnston and others being appointed trustees. In 1792 the location was fixed upon, and in Oct. 1793, the corner stone was laid, 1,180 acres of land having been conveyed to the trustees by the citizens of the neighborhood. The Rev. David Kerr was appointed professor and Samuel A. Holmes tutor, and it was opened for public instruction, Feb. 13, 1795. Mr. Kerr soon retired from his position, and was succeeded by Charles W. Harris, on whose resignation Joseph Caldwell was appointed in the autumn of 1796, and presided over the university for nearly 40 years. In 1804 he was appointed president of the university, and on his death in 1835 David L. Swain, LL.D., the present incumbent, succeeded. The faculty comprises 15 instructors; the present number of students is 450, and the college possesses a library of 21,000 volumes. The endowment of the university consists of about $150,000 invested in stocks, and about as much more in buildings. The trustees are appointed by the legislature, but no appropriations for the support of the university are made from the state treasury. Tuition is $50 per annum, but since 1836 any native of the state of good moral character, who is unable to pay, may have his tuition fee remitted, there being no other free scholarships. The two literary societies ("Dialectic" and "Philanthropic") generally support from one to three beneficiaries each. Connected with the college is a law school with two professors, and also a scientific school established in 1853 with two professors.

NORTH RIVER. See HUDSON RIVER.

NORTH SEA, or GERMAN OCEAN, an extensive arm of the Atlantic which lies between Great Britain and the continent of Europe, extending from lat. 51° to 61° N. and long. 2° 30' W. to 7° 30' E.; extreme length about 700 m., breadth 400 m. It has the Atlantic ocean on the N.; Norway, Denmark, Hanover, Holland, Belgium, and the N. extremity of France on the E. and S. E.; and the strait of Dover, England, Scotland, and the Orkney and Shetland islands on the S., S. W., and W. The shores are deeply indented by numerous bays, inlets, and estuaries, the chief of which are the fiords of Hardanger, Bommel, Bukke, and Flekke on the coast of Norway; the Skager Rack and Cattegat, which communicate between the North sea and the Baltic; the fiords of Liim, Nissum, and Staving, and the estuaries of the rivers Varde and Eider, in Denmark, and those of the Elbe, between Denmark and Hanover, and the Weser in the latter country; the Zuyder Zee and the mouths of the Meuse and Scheldt in Holland; the estuaries of the Thames, Humber, and the Wash in England; and the friths of Forth and Moray in Scotland. Beside the islands which have been already mentioned as forming the W. boundary of the North sea, there are many others, all however within short distances of the coasts of Norway, Denmark, and Holland. The most important are those of Stor Sartorse, Bommeloe, and Karmöe, in Norway; Fanöe, Römöe, Sylt, Fohr, Amrom, Nordmarsch, Pelworm, and Nordstrand in Denmark; Neuwerk and several smaller in Hanover; Helgoland, which belongs to England, opposite the mouth of the Elbe; Borkum, Rottum, Schiermonnikoog, Ameland, Ter Schelling, Vlieland, Texel, and the islands formed by the deltas of the Meuse and Scheldt, in Holland. The Bell rock and May rock, on each of which there is a lighthouse, are the only islands of the North sea upon the coast of Great Britain. Floating lights have been established upon several banks, and there are lighthouses at all the principal points and ports upon its coasts. The average depth of the sea is about 30 fathoms, but toward the Norwegian side the soundings increase to 190 fathoms. The North sea is traversed by several extensive banks. The Dogger bank, which is the principal, lies about the centre, between lat. 54° 10' and 57° 24' N., and long. 1° and 6° 7' E.; another bank extends 110 m. in a N. E. direction from the frith of Forth, and one runs 105 m. N. W. from Jutland in Denmark. The tidal wave which comes from the Atlantic passes along the W. coasts of Great Britain and Ireland, and enters the North sea by its N. extremity, continuing to rule the tides as far S. as the N. end of the strait of Dover, and, through this strait, to be felt in some degree in the English channel. Upon the N. coast of Scotland the rise is about 12 feet, and increases, according to the figure of the shore, to 20 feet at the Humber and 18 at Dover. The portion of the tidal wave which is intercepted by the English channel as it comes from the S. passes directly through that channel, and meets the tide of the North sea about the N. extremity of the strait of Dover; and when the two floods meet, the S. is half a day earlier than the N.; or, in other words, the N. wave is part of the tide preceding the one from the S. which it meets; that time, and the interval taken by the tide in passing through the English channel, in all about 18 hours, being occupied by the tidal wave in making the complete circuit of Great Britain.—Several thousand people are occupied in the fisheries in the North sea, and the quality of the fish has long been celebrated. The chief kinds taken are cod, ling, hake, turbots, soles, different sorts of flat fish, lobsters, and immense quantities of mackerel and herrings.

NORTH-WEST PASSAGE. See ARCTIC DISCOVERY, and MACCLINTOCK, SIR F. L.

NORTH-WESTERN PROVINCES, or AGRA, a lieutenant-governorship of British India, subordinate to the presidency of Bengal, lying between lat. 23° 51′ and 30° 26′ N., and long. 75° 20′ and 84° 40′ E. Its name does not accurately describe its position, for it occupies about the centre of the N. part of Hindostan. It comprises the following divisions and districts:

Divisions.	Districts.	Area in sq. m.	Population.
Meerut............	Saharunpoor....	2,165	557,358
	Mozuffernuggur.	1,617	672,861
	Meerut.........	2,332	1,135,072
	Boolundshahur.	3,000	778,342
	Allygurh.......	2,149	1,134,565
Rohilcund..........	Bijnour	1,904	695,521
	Moradabad	2,967	1,138,461
	Budayoon	2,868	1,019,161
	Bareilly and Phillibheet...	2,937	1,378,268
	Shahjehanpoor..	2,483	812,588
Agra...............	Muttra.........	1,607	862,909
	Agra...........	1,864	1,001,961
	Furruckabad....	1,909	1,064,607
	Mynpoorie	2,009	832,714
	Etawah	1,674	610,965
Allahabad..........	Cawnpore	2,337	1,174,556
	Futtehpoor.....	1,583	679,787
	Humeerpoor and Calpee ...	2,240	548,604
	Banda..........	2,878	743,872
	Allahabad	2,788	1,379,788
Benares............	Goruckpoor	7,346	3,087,874
	Azimghur	2,520	1,653,251
	Jounpoor.......	1,552	1,143,749
	Mirzapoor	5,235	1,104,315
	Benares	994	851,757
	Ghazipoor......	2,187	1,596,324
Total.............	....	65,645	27.659,225

The lieutenant-governor also has jurisdiction over the non-regulation provinces and territories (so called because they have been only partially brought under the British system of government) of Saugor and Nerbudda, Butty, Kote Kasim, Jaunsar and Bawur, Deyrah Doon, Kumaon, Ajmeer, and British Nemaur. There are no returns of the area and population of most of these. The Delhi division, including the districts of Paniput, Hurriana, Delhi, Rohtuk, and Goorgaon; the Cis-Sutlej territory (Ferozepoor, Loodiana, Umballa, and Kythul); and the Punjaub or Trans-Sutlej states, formerly belonged to the North-Western provinces, but in 1859 were erected into a new lieutenant-governorship under the title of the Punjaub and its dependencies. The greater part of the lieutenant-governorship is a compact territory, bounded N. by the Himalaya and Nepaul, E. by Bengal, S. by Rewah, the Bundelcund states, the dominions of Sindia, Bhurtpoor, and some petty native territories, and W. and N. W. by the Punjaub and its dependencies. The province of Oude is bounded by it on 3 sides, Nepaul lying on the 4th. There are several detached tracts, one very large one lying between Bundelcund and Nagpoor, and including most of the non-regulation provinces. The North-Western provinces lie chiefly in the great plain of Hindostan, though the northern portions, situated within the Himalaya regions, are broken by spurs of the great snowy range, and the S. part is crossed by the Vindhya mountains. Along the S. base of this latter chain flows the river Nerbudda, and between the two hilly regions are the basins of the Ganges, the Jumna, and the Chumbul. The principal other rivers are the Soane, Betwah, Goomtee, and Gogra, all affluents of one or another of the preceding 3 great streams. The remaining physical characteristics and productions of the provinces will be found described under the names of the separate districts. The lieutenant-governor is appointed by the governor-general in council, and his seat of government is Agra. During the sepoy mutiny in 1857 the North-Western provinces were the principal theatre of war. (See HINDOSTAN.)

NORTHAMPTON. I. An E. co. of Penn., bounded E. by the Delaware river, which separates it from New Jersey, and intersected toward the S. by the Lehigh river; area, [illegible] sq. m.; pop. in 1850, 40,235. The Kittatinny or Blue mountains form the N. W. boundary, and the South mountain is on the S. E. In the valley between them are beds of valuable limestone, quarries of slate, and several iron mines. The productions in 1850 were 138,668 bushels of Indian corn, 105,147 of wheat, 46,9[illegible] of oats, 7,126 tons of hay, 2,756 lbs. of wool, and 205,100 of butter. There were 84 grist mills, 15 saw mills, 2 iron furnaces, 7 founderies, 1 cotton factory, 24 tanneries, 8 newspaper offices, 46 churches, and 7,243 pupils attending public schools. Several railroads and 2 canals meet at the capital, Easton. II. A S. E. co. of Va., forming the S. extremity of the peninsula lying between Chesapeake bay and the Atlantic ocean; area, 320 sq. m.; pop. in 1850, 7,4[illegible], of whom 3,648 were slaves. The coast line on the W. is indented by numerous inlets, and on the E., in the Atlantic, there are several small islands. The surface is level and the soil light and sandy. The productions in 1850 were 364,967 bushels of Indian corn, 184,087 of oats, 795 of wheat, 44,189 of sweet potatoes, and 7,756 lbs. of wool. There were 26 grist mills, 3 castor oil mills, 3 saw mills, 10 churches, and 622 pupils attending public schools. Value of real estate in 1856, $1,890,033, being an increase of 8 per cent. since 1850. Capital, Eastville. III. A N. E. co. of N. C., bounded N. by Virginia, and S. W. by the Roanoke river; area, about 350 sq. m.; pop. in 1850, [illegible], of whom 6,511 were slaves. It has a diversified surface and generally fertile soil. The productions in 1850 were 657,951 bushels of Indian corn, 1,378 bales of cotton, and [illegible] lbs. of tobacco. There were 15 grist mills, [illegible] saw mills, 6 stave manufactories, 1 shingle mill, 8 churches, and 178 pupils attending public schools. The county is intersected by the Seaboard and Roanoke and the Greenville and Roanoke railroads. Capital, Jackson.

NORTHAMPTON, a township and village, the capital of Hampshire co., Mass., about 1 m. W. from the Connecticut river, and on the Connecticut river railroad, 17 m. N. from Springfield and 95 m. W. from Boston: pop. of the township in 1860, 6,818. The village is situated on elevated ground in the midst of a beautiful country, having Mts. Tom and Holyoke in full view. It contains the county buildings, 2 banks, and several educational institutions of reputation, among which is the Northampton collegiate institute; and in 1860 there were 7 churches, viz.: 1 Baptist, 2 Congregational, 1 Episcopal, 1 Methodist, 1 Roman Catholic, and 1 Unitarian. There are several important manufactories, including 1 cotton mill, 1 tool factory, 3 paper mills, and 2 silk manufactories. A fine bridge over the Connecticut, 1,230 feet long and 26 feet wide, connects the town with Hadley.

NORTHAMPTON, a municipal and parliamentary borough and market town of England, capital of Northamptonshire, situated on the left bank of the Nen, 67 m. from London by railway; pop. in 1851, 30,544. It occupies the summit of an eminence rising from the river, over which there are several bridges. The principal manufactures are boots and shoes, in which about 2,500 persons are employed. There are iron and brass founderies, flour mills, breweries, and coach factories.

NORTHAMPTONSHIRE, an inland and central co. of England, surrounded by the counties of Lincoln, Cambridge, Huntingdon, Bedford, Buckingham, Oxford, Warwick, Leicester, and Rutland; area, 1,016 sq. m.; pop. in 1851, 212,380. The principal rivers are the Nen, Welland, and Avon. The surface is undulating, belonging to the basin of the Nen and watered by numerous rivulets. The N. E. extremity of the county belongs to the great fen district, and is only a few feet above the sea. The county is well wooded with oak, ash, beech, and elm. The climate is mild and healthy. The chief agricultural pursuit is stock raising. There are no manufactures of any importance, except boots and shoes. The county returns 8 members to the house of commons, 4 of whom are for its boroughs. It has railway communication with all parts of the country. There are two principal canals, the grand junction canal and the grand union canal.

NORTHCOTE, JAMES, an English painter and author, born in Plymouth, Oct. 22, 1746, died July 13, 1831. He was the son of a watchmaker, with whom he served an apprenticeship; after which, in accordance with a decided taste for art, he devoted himself to painting. In 1771 he was admitted by Sir Joshua Reynolds into his house as a pupil. In 1777, having acquired some proficiency in portrait painting, he repaired to Italy, and for 3 years studied the works of Titian, Michel Angelo, and other great masters of historical art. Returning to London in 1780, he became, through necessity rather than choice, a portrait painter, until the establishment of Alderman Boydell's "Shakespeare Gallery" gave his pencil employment in a higher walk of art. For this collection he painted "Prince Arthur and Hubert," "The Murder of the Princes in the Tower," "The Death of Wat Tyler," and "The Entry of Bolingbroke and Richard II. into London;" works which gained him considerable reputation. In 1787 he was elected an academician. For a number of years he pursued a prosperous career as a painter of portraits and history, but was gradually supplanted. He then tried fancy pieces, and also painted a series of moral pictures, entitled "The Modest Girl" and "The Wanton," which failed to make an impression. As he advanced in life he grew perceptibly less amiable, and his sarcasms and harsh criticism of the productions of contemporary artists made him exceedingly unpopular. He continued painting portraits until near the close of his career; but his pictures were eclipsed by those of Lawrence and Jackson. As an author, Northcote was known by a "Life of Sir Joshua Reynolds" (4to., London, 1813; with supplement, 1815; 8vo., enlarged, 1819), valuable chiefly for the sayings and anecdotes of Reynolds; "Life of Titian" (2 vols. 8vo., 1830), the joint production of himself and Hazlitt; and two volumes of fables, of which the first, entitled "One Hundred Fables" (8vo., 1828), contained original and selected pieces, with illustrations from his own designs; and the second, also illustrated by himself, was published after his decease under the title of "The Artist's Book of Fables." He is said to have been a pungent and entertaining converser, and, according to Leslie, "talked better than he painted."

NORTHERN LIGHTS. See AURORA BOREALIS.

NORTHMEN, and NORMANS, names usually given, the former especially to the ancient and mediæval inhabitants of Scandinavia, or Denmark, Norway, and Sweden, and the latter to that portion of them who conquered and settled in Normandy. In history Scandinavia has no place anterior to the discoveries of Pytheas, about 320 B. C. Thule, of which he heard when in Britain, was in all likelihood western Scandinavia, and the southern shores of Sweden. Tacitus (about A. D. 100) speaks of northern pillars of Hercules, meaning possibly the coasts of the strait of Elsinore. All, however, was conjecture; and all was soon lost in oblivion, or looked upon as fabulous. Pliny visited the shores of the North sea, and notices Nerigon (Norway). He appears to have gathered none but fabulous accounts of regions beyond the Baltic. Tacitus speaks of Suiones (Swedes) in the ocean, "strong in numbers, arms, and ships." Ptolemy the geographer (2d century A. D.) knew of Goths and Danes. Although nothing appears to warrant an idea that Scandinavia of old was at any time so populous as it is now, it is yet certain that it held a larger population than it could feed and employ; and hence the incessant piratical expeditions of the sea kings, and hence also a well known law of early Scandinavia, which ordained that certain members of each family should by lot annually seek their fortunes abroad. The father drove forth his sons on attaining manhood, with the exception of the eldest, who was heir to the estate. The Goths went forth first from Scandinavia in but 3 ships; and it is abundantly proved that it was not until vast communities had been thus formed on the southern shores of the Baltic, that they became the mighty people who were the terror of Rome. An opinion once generally prevailed that Sweden was the original home of the Goths. Another theory, of legendary origin, is that the Caucasus was their more ancient home, and that several migrations thence had preceded Odin and his Suiones, who came into Sweden about A. D. 70. Scandinavia was first laid open to the rest of Europe by Christianity. Scandinavian histories, eddas, and sagas had preserved mythical details of several previous centuries; and from these narratives, which have exercised the ingenuity of learned men, we gather that Scandinavians proper, subsequent to the exodus of the Goths, were drawn into maritime expeditions by Saxons and other tribes on the Elbe, who early in the 5th century had effected their English conquests. As early as 787 the Danes made incursions along the English coast. In 835 they were vanquished in a great battle by an Anglo-Saxon king, Egbert; but 40 years later, in the reign of Ethelred, a footing was established, and the Danes mastered Northumberland and other districts. They were temporarily held in check by Alfred the Great; but the Anglo-Saxon resistance grew feeble, and in 991 the Danes first exacted their tribute tax, the *Danegelt*. Four Danish sovereigns, among whom was Canute the Great, reigned in England during the next 50 years, down to 1042. As early as 852 the Scandinavians had a king in Dublin, and there were princes of the same race governing petty sovereignties at Waterford and Limerick. This rule appears to have continued as late as the invasion of Ireland by Henry II. of England. The Shetland isles and the Hebrides were early conquests of the Northmen. Scotland was visited by them at different periods between the 8th and 11th centuries. They were at length defeated and a large army cut to pieces in the reign of King Duncan, by the Scots commanded by Macbeth and Banquo. Further off, the Northmen, tempest-driven, or led on by thirst of discovery, found vast regions where they planted their language and civilization without opposition. Iceland was first discovered in 860 by Naddod, a Norwegian pirate. Returning from the Färöe islands, Naddod was driven off to the N. W., and saw an unknown, inhospitable-looking coast, which he named Snowland (Snöland). He was followed by a Swede, Gardar Svarfarson, who ascertained that it was an island. Four years later a sea rover from Norway came upon it and named it Iceland (Is-land). Its appearance was too forbidding to invite a prolonged visit. His companions, however, differed with him so entirely in their report of its aspect, and spoke so extravagantly of a delightful climate and fertile soil, "with milk from every plant and butter from every twig," that a Norwegian jarl who was banished from home, or rather compelled to fly from the vengeance of a race whose chief he had slain, took refuge in the new-found island. He was accompanied by his dependants, and established a colony (874). All the habitable parts of the island were speedily occupied by reënforcements from home. The ancient Scandinavian idiom, long preserved in Iceland, is still the language of its peasants. —Discoveries in the western Atlantic soon followed that of Iceland. About 982 a jarl of Norway, exiled for murder, withdrew with his son Eric the Red to Iceland. The son in 986 was forced to leave Iceland for the same cause; and wandering far away to the S. W., he saw land, and entered a deep bay which he called Eric's fiord. He named the country Grönland (Greenland), and founded a colony, which flourished until the 14th century, and continued to exist until the 15th.—We come now to the saga narratives of the discovery of America. Heriolf, a descendant of Ingolf, the first colonist of Iceland, was separated from his son Biorn by some accident at sea. They were traders. The son, roaming about the ocean in search of his father, was driven far westward in a prolonged gale, and at length saw land—a wide, flat, woody region, terminating in a cape, which Biorn doubled; and taking then a west wind, he put back to sea for Greenland. Here the first discoverer of America, satisfied to find his parent, thought little of his other adventure. He had seen a northern cape of the gulf of St. Lawrence. In the following year (1002), Leif, son of Eric the Red of Greenland, resolved to pursue the adventure. His father would have taken command of the cruise, but was deterred by an evil omen. Leif set sail with 35 men, and reaching the distant coast, steered along it in a S. direction until he came to a pleasanter region, which he called Markland, or the country of the wood. Pursuing his voyage, he discovered a still more inviting anchorage, and found the country undulating and woody, abounding with fruit and berries. There were also a river and lake filled with salmon. They here pitched tents and built huts; and having found abundant grapes, they called the place Vinland. Leif passed a winter there, and in the spring sold his vessel to a brother, Thorwald, who likewise remained a winter on the spot of Leif's encampment, and in the spring explored the coast westward, finding a beautiful region, and a single trace of inhabitants—a corn shed built of wood. He passed a second winter in Vinland; and in the following summer, after further explorations toward the E. and N., chose a spot for his abode. Here they found natives with canoes, and Thorwald was killed in a skirmish. His survivors drove off the natives and passed a third winter in Vinland. The natives resembled the Esquimaux, already known in Greenland. New adventurers followed upon the trace of these pioneers. In 1007 a rich Greenlander, Thorfin, determined to emigrate to Vinland. His followers numbered 60, and he was accompanied by his wife, Gudrida, the widow of a previous explorer. Five other women were on board; and the ships were freighted with all kinds of domestic animals, tools, and provisions for a permanent colony. Gudrida had been the first female to see the new world, having accompanied her former husband during the previous year. The expedition of Thorfin prospered. The natives came in great numbers, and trafficked in furs and produce. Gudrida bore a son, Snorro, the first birth of European parentage in America, who has been said to have been an ancestor of the sculptor Thorwaldsen. The family remained 3 years in the colony, but ultimately returned, and Thorfin settled and died in Iceland. The widow made a pilgrimage to Rome in her bereavement, and died in a cloister founded by her son in Iceland. Other chiefs went to Vinland, but their history throws no further light upon the colony. They however discovered land extending far away to the S. W., and inhabited by natives of different caste, of darker color and more vigorous frame. The colony perished at last, destroyed probably like that of Greenland. Traces of it were found by Jesuit missionaries among the Indians of Gaspé at the mouth of the St. Lawrence, a tribe which revered the symbol of the cross before the arrival of the missionaries. Physical constitution and peculiarities of manners and customs are also cited in confirmation of European descent. Father Charlevoix adds that "many marks distinguishing them from other American Indians, go far to make me believe that they are a colony of Europeans degenerated into savages through destitution." There are many corroborations of the truthfulness of the Icelandic chronicles, from which the foregoing narrative is derived, and which are sustained by a continental historian almost contemporary with the expedition of Thorfin. This was Adam of Bremen, a priest who was entertained for a long time at the Danish court, where the American discoveries were as well known as in Iceland. Two Venetian navigators assert that they visited the American coast, in the service of a prince of the Orkneys, toward the close of the 14th century, and collected relics of the old Icelandic colonies.—The Russian coast, although peopled by races more warlike than the nations of the south and west, were colonized by Scandinavians at a very early period. Russia appears frequently in the sagas, under the names Ostrogardia and Gardarike; and Runic inscriptions prove that the Northmen had been in Russia long before the introduction of Christianity. They received from the native tribes the name of Varangians, Varængars, or Væringjar, sea rovers, an ancient Swedish term for wolves. Ruric occupied Novgorod about the year 865, and gave to his followers the best lands of the subdued inhabitants. He founded the dynasty which gave sovereigns to Russia until the close of the 16th century. Two of Ruric's captains penetrated to Kiev, whence the Dnieper showed the way to the Black sea and the Bosporus. At the end of the 11th century the Byzantine emperor had 700 Varangians from Kiev for his body guard; and from this period until the fall of the eastern empire, the Byzantine sovereigns trusted their lives to no other household troops. The *Codex Flateyensis* of Iceland gives the number of the Varangian guard in the 11th century at 300; and they are described by Gibbon (chap. 55) as "retaining to the last the inheritance of spotless loyalty." Harald Hardrada, a captain of the guard during the reign of the empress Zoe, returned to Russia, married a daughter of the czar, and became king of Norway. His adventures are the foundation of Oehlenschläger's tragedy of the "Varangians in Constantinople." Among the antiquities in the museum of Christiania are Byzantine coins of 842–867, found in ploughing the fields of Aggerhuus in Norway.—A Danish invasion penetrated to the Meuse in 515, and was repelled. The victories of Charlemagne over the Saxons provoked at length a league between that people and the Danes. Gottfried, king of Jutland, at the head of pirate bands, ravaged the French and Spanish coasts, even within the strait of Gibraltar. Their great invasion of France, however, was delayed until after 841; from which period the whole coast of western Europe from the Elbe to the Guadalquivir was a prey to the Northmen. In 837 they had sacked Utrecht and Antwerp, and fortified themselves on the island of Walcheren, spreading themselves on the mainland. Flanders was obstinately defended; but Friesland, lower Lorraine, and Neustria fell without resistance. Rollo devastated Holland, and appeared upon the Seine, while Gottfried ravaged the valleys of the Meuse and Scheldt. They burned and sacked Cologne, Bonn, Treves, Metz, and other cities, stabling their horses at Aix la Chapelle in the cathedral church of Charlemagne. *A furore Normannorum libera nos, Domine*, came to be part of the Catholic litany. Hastings, at the head of a band of Northmen, sacked Bordeaux, Lisbon, and Seville; defeated the Moorish conquerors of Spain at Cordova; crossed the straits into Morocco; repassed them; overran Tuscany; returned to France, where other chieftains had had various success against Charles the Bald, and embraced Christianity. (See HASTINGS.) His name, the most dreaded of all the vikings, was adopted by many successors. With safe winter quarters in Spain, they extended their ravages to Naples, Sicily, and the coasts of the Greek empire. Anarchy meanwhile prevailing in France, in the autumn of 885 they laid siege to Paris. After a year the siege was converted into a blockade, but at last King Charles the Fat bought off the Northmen with 700 pounds of silver, and a free passage to the upper Seine and Burgundy. The most redoubtable of the Northmen afterward was

Hrolf, better known as Rollo, an exiled robber chieftain of Norwegian parentage, first duke of Normandy, and direct ancestor, in the 6th generation, of William the Conqueror. In the words of Snorro Sturleson: "He was so mighty of stature, that there was no horse of strength and size to bear him. He was therefore always on foot, and was called Rollo the marcher." He ravaged Friesland and the countries watered by the Scheldt, and took Rouen, St. Lô, Bayeux, and Evreux. From Charles the Simple he accepted the hand of a daughter, together with a tract of Neustrian territory N. of the Seine from Andalys to the sea (modern Normandy), in exchange for Christian baptism and an oath of fealty (912). Thus was arrested the Scandinavian flood which had devastated France for more than a century. Rollo distributed among his followers the lands of Neustria, to be held of him as duke of Normandy. Thus were laid the foundations of the feudal system which William (7th duke) transplanted into England (1066–'87). Few external traces of the Scandinavians are to be found in modern Normandy. Yet for a time the Scandinavian gods divided with the Saviour the religious reverence of the people of that country. Monasteries and cathedrals were built however, with what extent and magnificence their splendid remains attest. The Normans adopted the language of the vanquished province, but greatly modified it. It was the *langue d'oui* (the *langue d'oc* being south of the Loire), which became under Norman inspiration the peculiar medium of romantic poetry.—The history of the Northmen at home, their kings and governments, will be found under DENMARK, NORWAY, and SWEDEN. The race of Anglo-Saxons belongs rather to the Teutonic than the Scandinavian family. Britain, deserted by the Romans, was subdued by Saxons, Angles, and Jutes (Jutlanders). The last in small numbers were the only really Scandinavian ingredient of the blended nation. The Angles from Schleswig left their country a desert; and although thus allied with Scandinavia, their origin and language were Teutonic. The Saxons, the predominating race, were natives of the country between the Elbe and the Eider (Holstein and Lauenburg).

NORTHUMBERLAND. I. A central co. of Penn., bounded W. by the Susquehanna river and its West branch, intersected by the North branch, and drained by Shamokin, Mahonoy, and other creeks; area, 457 sq. m.; pop. in 1860, 29,057. Its surface is mountainous, particularly in the south, and the soil of the valleys is generally very fertile. The productions in 1850 were 289,522 bushels of wheat, 282,087 of Indian corn, 194,676 of oats, 20,310 tons of hay, 26,670 lbs. of wool, and 501,619 of butter. There were 26 grist mills, 5 saw mills, 4 iron founderies, 16 lime kilns, 15 tanneries, 4 newspaper offices, 52 churches, and 3,900 pupils attending public schools. The county is traversed by the North Branch canal; and the Shamokin valley and Pottsville and the Sunbury and Erie railroads have their terminus at the capital, Sunbury. II. An E. co. of Va., at the mouth of the Potomac, bounded E. by Chesapeake bay; area, about 200 sq. m.; pop. in 1850, 7,346, of whom 3,755 were slaves. It has an undulating surface, with a moderately fertile soil. The productions in 1850 were 221,857 bushels of Indian corn, 53,902 of wheat, 15,093 of sweet potatoes, 8,536 lbs. of wool, and 29,773 of butter. It contained 28 grist mills, 6 saw mills, 3 tanneries, 11 churches, and 279 pupils attending public schools. The value of real estate in 1856 was $1,176,618, showing an increase of 22 per cent. over 1850. Capital, Heathsville.

NORTHUMBERLAND, a central co. of Canada West, on Lake Ontario; area, 780 sq. m.; pop. in 1851, 31,229. It is drained by small streams, some of which flow from Rice lake on its N. border. The grand trunk railway runs along its S. border; its capital, Cobourg, is connected by railroad with Peterborough.

NORTHUMBERLAND, a N. E. co. of New Brunswick, bordering on the gulf of St. Lawrence, and drained by the river Miramichi; area, 4,800 sq. m.; pop. in 1851, 15,064. It is abundantly watered, has a diversified surface, very heavily timbered, exports large quantities of lumber, and possesses valuable fisheries. Capital, Miramichi.

NORTHUMBERLAND, the northernmost co. of England, bounded N. W. by Scotland, from which it is partly separated by the river Tweed, E. by the North sea, S. by Durham and Cumberland, and W. by Cumberland; area 1,952 sq. m.; pop. in 1851, 303,568. On the W. it is mountainous, being covered by the Cheviot hills; but along the coast it is level, with a highly fertile soil. The Tyne, Wansbeck, Blyth, Coquet, Aln, Till, and Tweed are the principal streams, the first and last being the most important, not only for their superior facilities for navigation, but for their abundance of salmon. The county contains vast quantities of coal, frequently found together with limestone, lead ore in the mountains to the S. W., iron ore in various parts, and many excellent qualities of stone. The principal agricultural products are wheat, oats, and barley; and the science of agriculture has been so highly developed that it has become a school to which many resort. Coal and iron are the bases of most of the manufacturing operations. It is traversed by two lines of railway, the Newcastle and Carlisle and the Newcastle and Berwick. Interesting remains of the Roman era, including the famous wall, exist, and there are a number of ruined castles which attract much attention. The principal towns are Newcastle, Tynemouth, North Shields, Morpeth, and Alnwick. Northumberland returns 8 members to parliament, 4 for the county, 2 for the borough of Newcastle-upon-Tyne, and 1 each for Morpeth and Tynemouth.

NORTHUMBERLAND, DUKE OF. See DUDLEY, vol. vi. p. 650.

NORTON, Andrews, an American scholar and theologian, born in Hingham, Mass., Dec. 31, 1786, died in Newport, R. I., Sept. 18, 1853. He was graduated at Harvard college in 1804, and commenced immediately his preparation for the clerical profession. In 1809 he became a tutor in Bowdoin college, and in 1811 a tutor in mathematics in Harvard college. In 1813 he was appointed librarian of the university at Cambridge, and in the same year succeeded the Rev. Dr. Channing as lecturer on biblical criticism and interpretation, on the foundation created under the will of the Hon. Samuel Dexter. In 1819, on the organization of the divinity school as a separate department of the university, he was chosen Dexter professor of sacred literature, and, resigning the office of librarian in 1821, continued in the discharge of the duties of his professorship till 1830. The remainder of his life was passed for the most part in retirement, in feeble and gradually declining health, but with a degree and amount of diligence as a student and an author seldom exceeded by persons of the most vigorous constitution. In his theological views and writings Mr. Norton united opposite schools of thought, and belonged by an almost equal title to the extreme right and the extreme left as to matters of religious belief. He was radical as a critic and interpreter, conservative as an expositor of Christian doctrine. He applied to the sacred writings not only the severest recognized tests of genuineness and authenticity, but equally his own exacting taste and fastidious judgment, thus rejecting on internal grounds, and not infrequently for reasons peculiar to himself, many passages generally received as belonging to the true text of Scripture. But what he regarded as the original record of Christ's life and words he held in the most profound reverence. Thus, while he led the van in the Unitarian protest against Calvinism, he was foremost in opposition to the naturalistic school of which Theodore Parker was the principal representative. In his early life he frequently appeared in the pulpit; but though his thought was profound and his utterance impressive, he lacked vivacity of style and manner. As a lecturer on the interpretation of Scripture he can have had in this country few equals, and no superior, in clearness of conception, perspicuity of statement, affluence of illustration, and in the union of searching, unsparing criticism with the profoundest devotional feeling. In applying, with a hand that never shrank from its work, the probe and the scalpel to the sacred record, he made it manifest that his sole object was to reach and lay bare the vital truth of revelation. In 1812 he undertook the editorship of "The General Repository and Review," a periodical mainly designed to illustrate and defend the views of the liberal school of theology. The work was admitted on all hands to be conducted with eminent ability; but its boldness in the championship of doctrines generally deemed heretical deprived it of the popular favor, and at the end of the second year it was discontinued for want of adequate support. In 1833 he published "A Statement of Reasons for not believing the Doctrines of Trinitarians concerning the Nature of God and the Person of Christ," which holds its place as an unrivalled vindication of the humanitarian theory as to the nature of Christ. In 1837 appeared the first volume of his elaborate work on "The Genuineness of the Gospels," which was followed in 1844 by the 2d and 3d volumes, devoted principally to the history of Gnosticism. The object of this work is to defend the authorship of the Gospels by the men whose names they bear against the theory of their late and gradual formation. A 4th volume, on the internal evidences of the genuineness of the Gospels, nearly prepared for the press, appeared after his death. He left in readiness for publication a "Translation of the Gospels," which was published after his death, with a supplementary volume of notes, in part designed by him to accompany the translation, and in part selected from his published works and his miscellaneous manuscripts. Of his other literary labors, those which attracted the most attention were his inaugural discourse on assuming the duties of his professorship, and his address to the alumni of the divinity school, in 1839, "On the Latest Form of Infidelity." He contributed many valuable articles to the "North American Review" and the "Christian Examiner." He also edited, in 1833–'4, in connection with Mr. Charles Folsom, "The Select Journal of Foreign Periodical Literature." His poetical talent, if cultivated, would alone have made him eminent. His poems were few, but of rare beauty in conception, imagery, and rhythm; and some of his devotional hymns are among the choicest lyrics in our collections of sacred psalmody.

NORTON, Caroline Elizabeth Sarah, an English poetess, born in 1808. Her father, who died when she was 9 years old, was a son of Richard Brinsley Sheridan, and her mother was a granddaughter of the earl of Antrim. She received an excellent education, and from childhood had so strong a passion for writing that her mother judged it necessary to deny her the use of pen and paper. Her first publication was a short satirical piece called "The Dandies' Rout," which appeared while she was yet a school girl. In July, 1827, she was married to the Hon. George Chapple Norton, brother of the present Lord Grantley. The union was not a happy one, and in 1836 a quarrel occurred under circumstances which excited much public comment. She was accused of adultery with Lord Melbourne, then prime minister, but was acquitted after an exciting public trial. In her lines "To the Duchess of Sutherland," Mrs. Norton feelingly alludes to the slanders to which she was subjected on this occasion. Her first volume of poems, comprising among others "The

Sorrows of Rosalie," written in her 17th year, appeared anonymously in 1829, and met with general favor. "The Undying One" (1830), founded on the legend of the wandering Jew, achieved a still greater success. It was followed by "A Voice from the Factories" (1836); "The Dream, and other Poems" (1840); and "The Child of the Islands" (1845). In the last mentioned poem she calls the attention of the prince of Wales to the want of communication and sympathy between the higher and lower classes of society. Mrs. Norton has interested herself warmly in several social problems, particularly such as affect the condition of the poor and the position of women, and has written "English Laws for English Women in the 19th Century" (privately printed, 1854); "A Letter to the Queen on Lord Chancellor Cranworth's Marriage and Divorce Bill" (1855); and a series of letters to the "Times" on philanthropic subjects. In prose she has also published two novels, "The Wife, and Woman's Reward" (1835), and "Stuart of Dunleith, a Story of Modern Times" (1847), which gave evidence of great powers as a novelist; but the latter work was of too painful an interest to become permanently popular. Mrs. Norton is the author of "Aunt Carry's Ballads" (1847), a Christmas book for children; and she has written largely for annuals and magazines. In 1850 she collected some of her miscellaneous contributions to periodicals under the title of "Tales and Sketches in Prose and Verse." The most striking characteristics of Mrs. Norton's poetry are passion, force of diction, and at times remarkable tenderness. She has lately been engaged in writing the "Lives of the Sheridans," her paternal ancestors, which is expected to appear in 1861.

NORTON, John, an American clergyman, born at Stortford, Hertfordshire, England, May 6, 1606, died in Boston, Mass., April 5, 1663. He was educated at Cambridge university, and was afterward curate in his native town. Having embraced Puritanism, he came to Plymouth, New England, in Oct. 1635, and preached there during the winter. In 1636 he went to Boston, and before the close of the year became minister of the church at Ipswich. In 1652 he returned to Boston. He and Gov. Bradstreet were the two agents sent from the colony in 1662 to address Charles II. after his restoration. The king assured them that he would confirm the charter, but required that justice should be administered in his name, and that all persons of good moral character should be admitted to the Lord's supper, and their children to baptism. This was exceedingly offensive to the colonists, who treated the agents on their return with such coldness, that it is said to have hastened the death of Mr. Norton. He composed several works, which gave him considerable reputation in his time. The first Latin book ever written in this country came from him, and was an answer to a number of questions relating to church government, sent over from Holland by Apollonius. He wrote a treatise against the Quakers, entitled "The Heart of New England rent by the Blasphemies of the Present Generation," which so exasperated the members of that sect, that after his death they represented to the king and parliament that "John Norton, chief priest of Boston, by the immediate power of the Lord, was smitten and died."

NORWALK. I. A township of Fairfield co., Conn., on Long Island sound, and on both sides of the mouth of Norwalk river, here crossed by a bridge, 45 m. N. E. from New York, and 31 m. S. W. from New Haven; pop. in 1860, 7,583. It is on the line of the New York and New Haven railroad, and is the S. terminus of the Danbury and Norwalk railroad. In 1860 it contained 2 banks, a foundery, various manufacturing establishments, 2 union schools with about 1,000 pupils, and 9 churches, viz.: 2 Baptist, 2 Congregational, 2 Episcopal, 2 Methodist, and 1 Roman Catholic. The town is largely engaged in manufactures, especially of felt, fur, and straw hats and hat bodies, felt cloth, shoes, clothing, earthen ware, and locks. Felt cloth was first successfully made in this town about 1834, and the manufacture has since been in a great measure fixed here by important patents. Several inventions for forming the bat, which constitutes the basis of the cloth, were patented prior to that time, but none of them was so well adapted to the purpose as the invention of John Arnold for crossing the fibres of the wool at right angles, patented in 1829, and improved in 1836. The "Union company" was organized in 1837, and has extensive mills and machinery, capable of turning out 1,000 yards a day. The Winnipauk mills are nearly as extensive, and can turn out 800 yards a day. The two establishments manufacture from 350,000 to 500,000 yards a year. In making cloth under the Arnold patent, the wool is sorted, picked, and carded in the usual manner (see FELT); but in forming the bat, a different plan is pursued. Two carding machines are used, one at the extremity of the endless moving apron, from which a thin layer of fibres is deposited upon the apron lengthwise, and another at the side of the apron from which another layer is carried by a comb carrier across the apron, and laid at right angles with the first. These layers are thus alternated until sufficient thickness is obtained. The bat is then removed from the apron, placed between two cloths, and passed under a hardener, which speedily felts the bat down to a thin flannel. The hardener is a heavy iron plate, to which a very rapid jigger motion is given. When the flannel comes out from under the hardener it is in pieces measuring about 36 yards in length, and from 8 to 9½ feet in width. It is then fulled up to the desired width and length, and dressed by substantially the same processes as are used in the making of thread goods. The cloths made here are handsomely finished, warm and impervious, and cheap, and are in demand for cloaks, talmas, overcoats, and other heavy garments.—Norwalk was burned during the revolutionary war by a British force under Gen. Tryon, July 12, 1779. II. A city and the capital of Huron co., Ohio, on the line of the Cleveland and Toledo railroad, 110 m. N. from Columbus; pop. in 1859, about 4,000. It contains the county buildings and several educational institutions, among which are the Norwalk institute and a female seminary. It has a bank, a public library and reading room, 2 newspaper offices, 6 churches, 8 founderies, and steam flour and saw mills.

NORWAY (Norw. or Dan. *Norge;* Swed. *Norrige;* Ger. *Norwegen;* Fr. *Norvège*), a kingdom of northern Europe, occupying the western portion of the Scandinavian peninsula, and lying between lat. 58° 5′ and 71° 11′ N., and long. 5° 11′ and 32° E. It is bounded N. by the Arctic ocean, E. by Russian Lapland and Sweden, S. by the Skager Rack, and W. by the North sea and the Atlantic ocean. Its length is about 1,080 m., and its greatest breadth 275 m. It is divided for political purposes into 5 stifts or provinces and 17 amts or districts, the area and population of which, according to the government returns for 1855, are as follows:

Divisions.	Area in sq. m.	Population.
CHRISTIANIA OR AGGERHUUS:		
Smaalehnen	1,669	84,416
Aggerhuus	2,012	95,961
Hedemark	10,845	101.898
Christiania	10,441	115,149
Buskerud	5,771	90,348
Jarlsberg and Laurvig	889	78,228
Bradsberg	5,405	76,546
CHRISTIANSAND:		
Nedenaes	4,622	59,112
Mandal and Lister	2,065	67,870
Stavanger	8,527	91,589
BERGEN:		
North Bergen	5,805	104,762
South Bergen	6,743	81,496
Romsdal	6,025	90,288
DRONTHEIM:		
North Drontheim	7,210	96,304
South Drontheim	8,832	78,571
TROMSOE:		
Nordland	14,611	77,855
Finmark	27,808	54,665
Total	123,275	1,433,488

It is united with Sweden under one sovereign, but according to the terms of the constitution is "free, independent, indivisible, and inalienable." The principal cities and towns are Christiania, the capital, Bergen, Drontheim, Stavanger, Drammen, Christiansand, and Frederikshald.—The coast is very much indented by arms of the sea, some of which are deep and form magnificent harbors, and from some the mountains rise perpendicularly to a vast height. The Christiania fiord, on which the capital is situated, is a long arm of the Cattegat. On the S. W. coasts are the Bukke and Bömmel fiords, and on the W. is the Drontheim fiord. The Lofoden islands, which belong to Norway, are separated from the mainland by a channel called the West fiord. There are numerous other islands along the coast, particularly toward the N. and N. W. The principal rivers are the Tana and Alten in the N., flowing into the Arctic ocean, and the former forming part of the boundary on the side of Russian Lapland; the Salten and Namsen in the W., having their mouths in the Atlantic; and the Lauven, Drammen, and Glommen, which fall into the Skager Rack. The Lougen connects Lakes Losna and Miösen. The Klar rises in Norway, but has its mouth and the principal part of its course in Sweden. There are numerous lakes in all parts of the country, the largest being the Miösen, 40 m. N. from Christiania, 55 m. long and from 1 to 12 m. broad; it is formed by an expansion of the river Lougen, and flows into the Glommen through the Vermen. The surface is very mountainous, particularly in the N., but there are no well defined and regular ridges, the great Scandinavian chain, which runs, under the name of Kiolen and other appellations, N. and S. throughout the peninsula, consisting rather of a series of elevated plateaux from which rise mountain masses. The principal summits are Galdhoppigen, 8,785 feet above the sea, and Skagtölstind, 8,390 feet. The descent from these plateaux on the Swedish side is gradual, but toward the Atlantic across Norway it is abrupt and precipitous, though it stretches out far toward the sea, and in some places covers almost the entire width of the kingdom. The general character of the whole country in fact is extremely rugged. The valleys are short and abrupt. Precipices, cascades, and torrents are met with in every direction, and grand and picturesque scenery abounds. Among the most striking natural curiosities is the mountain of the Kilhorn in Nordland, a remarkable pyramidal peak, terminating with a long, sharp, spire-like summit, and having a large perforation about ¾ way up its side. The mountain of Hornelen, which forms the E. extremity of the island of Bremanger at the entrance of Vaags fiord, is an isolated mass from which rises a sharp-pointed peak inclined at an angle of 60° to the horizon, and appearing about to topple over upon the surrounding plain. Some of the mountain passes are extremely picturesque. The Vöring-foss and Rinkan-foss are cataracts, each 900 feet in perpendicular descent, and several of the rivers have falls of less height. Off the coast lies the Maelström, whose terrors have been so much exaggerated. (See MAELSTRÖM.) The geological formation is chiefly primitive and transition rocks. The most abundant is gneiss, alternating occasionally with granite, and abundantly intermixed with mica slate. Limestone, quartz, and hornblende are also found. In the S. districts there are many traces of volcanic action. The mountains are rich in iron, copper, silver, nickel, and cobalt. The soil is in general of poor quality. Only $\frac{1}{10}$ of the surface is thought to be arable, and not more than $\frac{1}{100}$ is actually under cultivation. The land is of a light sandy texture, which under the best cultivation could not yield heavy crops. There are however vast pasture lands of very good quality.—The climate is healthy, and less severe than might be expected from the high latitude and elevation of surface, being considerably tempered by the sea and warm S. W. winds. Many of the western and northern gulfs and fiords are rarely or never frozen, while those on the S. are filled with ice. The mean temperature at Christiania is 43.1° F.; at Ullensvrang, on the gulf of Hardanger, 44.9°; at Drontheim, 39.50°; at the Salten fiord, 43.1°; and at the North cape, 29.9°. The temperature is on the whole milder than that of any other region equally distant from the equator. Vegetation flourishes as far N. as lat. 70°, though in Siberia it ceases at about 60°. The weather is remarkably steady for the latitude. About $\frac{1}{33}$ of the surface is covered with perpetual snow; in other districts snow lies about 4 months in the year, beginning toward the end of November. In January and February the mercury ranges from 14° F. above to 15° below zero, and sometimes sinks to 31° below. In summer it rises occasionally to 108°, and the crops ripen 8 months after sowing. The principal crop is barley, which is cultivated as far N. as lat. 70°. Rye, oats, wheat (in favorable seasons and southern districts), potatoes, flax, hemp, a little tobacco, and apples, pears, cherries, and other fruits are also raised. There are large forests of valuable timber. The wolf and bear are the principal wild animals. Deer are now scarce. The lynx and wolverene are occasionally met with, and there are hares, wild fowl, and game in abundance. One of the most valuable domestic animals is the reindeer, which constitutes the main dependence of the inhabitants of the N. provinces. Cattle are reared in great numbers, but the breed is inferior; and the horses, though strong and sure-footed, are of small size. Ponies of a good breed are raised and exported. Sheep and goats are numerous. The rivers and lakes are abundantly stocked with many varieties of excellent fish, among which are trout and salmon, while the neighboring seas afford valuable fisheries of cod and herring.—The inhabitants of Norway are an ingenious, frugal, industrious, and honest race, surpassing in enterprise both Swedes and Danes. They are cold and reserved in manner, but kind and hospitable, simple in their habits, firm in purpose, and patriotic. They are among the best sailors in the world, large numbers of the population being engaged from early life in the coast fisheries, which are an excellent school for seamen, the navigation among the islands, shoals, and narrow channels being intricate and dangerous. The N. provinces are peopled chiefly by Laplanders, who live almost isolated from the rest of the inhabitants, and whose chief occupation is tending their reindeer herds. The industry of the more southerly provinces is devoted more to stock raising than tillage. Most of the land is the property of the cultivators. The large landholders are called proprietors; the smaller landholders, who exclusively farm their own estates, are called bonders, and are among the most useful and active of the population. The system of agriculture is extremely rude, and the prejudice of the farmers against innovation precludes the hope of any speedy improvement. Under-drainage is never practised. The amount of grain of all kinds produced annually, exclusive of that retained for seed, is about [illegible]000 bushels, which is not sufficient for domestic consumption; and about half as much more, consisting almost wholly of rye and barley and valued at $3,500,000, is annually imported from Denmark and Russia. The precariousness of the crops has led to the establishment of corn magazines where farmers may deposit their surplus produce, receiving interest for it at the rate of 12½ per cent. per annum, and in time of scarcity may borrow grain at the interest of 25 per cent. per annum. The pine and fir forests, which occur chiefly on the banks of the great rivers, give employment to great numbers of timber merchants; and their product, beside being converted into planks and beams, is invaluable for fuel in working the mines, no coal being found in the kingdom. The mines are not worked to their full profitable capacity, partly on account of the comparative scarcity of fuel, and partly of government restrictions. The yield of silver from the Kongsberg mines, which has been as great as $212,000 a year, is now not more than $1[illegible]000, the state, to which they belong, limiting the production for fear of exhausting them. The total produce of copper is from 400 to 50[illegible] tons. The Röraas copper mines have been worked for more than 200 years. The iron mines are very imperfectly worked, and do not yield more than 30,000 tons per annum, but the metal is of very superior quality. The value of the fisheries is about $5,000,000 annually. Those of cod and *sey*, or Norway haddock, which are prosecuted chiefly in February and March along the N. W. coasts, employ about [illegible] boats of 3 tons and under; and that of herrings, the chief seat of which is between Bergen and Stavanger, yields 1,000,000 barrels annually. Lobsters are taken for the London market, two lines of packets being constantly employed during the season in their transportation. Mackerel are salted for winter consumption. An aggregate of 21,000 persons are employed exclusively in fisheries. The manufacturing industry is of very trifling importance, and consists chiefly in the production of cotton, woollens, linens, and silks for domestic use. There are not more than 6 or 8 cotton factories and 7 paper mills in the whole kingdom. The peasants supply nearly all their wants by their own labor. There are [illegible] distilleries, tobacco factories, and large [illegible] works, beside various establishments connected with the mines.—The foreign commerce of Norway consists chiefly in the exchange of fish and timber for provisions and manufactured goods. The fish trade centres principally at Bergen, and comprises dried and salted cod,

cod liver oil, cod roes (sent to France and Spain to be used as bait for sardines), and herrings. About 600,000 barrels of the last are annually sent to Sweden, Denmark, and the Baltic ports; the codfish is taken principally by Russia, France, Spain, and Italy, and the oil by Germany and Holland. About 500,000 loads of timber are annually shipped to France, England, Denmark, Holland, and Belgium. Granite has recently been exported to Hamburg. The imports consist of wines and colonial produce, salt from Spain, and manufactured goods from Germany, France, Belgium, and England. The following table shows the commerce with foreign countries in 1855:

Countries.	Imports.	Exports.
Denmark	$5,862,600	$4,778,200
Great Britain	4,414,200	6,655,200
Hanse Towns	2,422,000	704,600
Sweden	2,165,200	3,661,200
South America	551,600	98,400
Prussia	520,200	1,652,600
Netherlands	498,800	5,776,600
France	320,400	3,111,400
Russia	241,400	79,800
United States	172,800	49,400
West Indies	142,300	42,000
Italy	140,200	51,000
Belgium	136,400	245,400
Spain	90,400	1,166,400
Portugal	85,200	29,400
Turkey	68,600	254,800
East Indies	58,000	......
Austria	19,800	22,400
Hanover and Oldenburg	5,800	610,000
Mecklenburg	......	123,800
Total	$17,906,400	$29,102,600

In 1854 the imports amounted to $14,288,400, and the exports to $23,307,000. The merchant marine in 1856 consisted of 5,215 vessels, with an aggregate burden of 414,554 tons and an equipment of 28,560 men. In 1857, 10,928 vessels of 935,938 tons entered at the Norwegian ports, and 11,017 vessels of 946,239 tons cleared from the same. The foreign commerce is mostly in the hands of Hamburg merchants, and labors under many restrictions and considerable import duties. The trade with Great Britain is steadily increasing, while that with France and Holland, does not seem to admit of much expansion. Considerable quantities of American cotton and tobacco find their way into the kingdom, but for the most part indirectly. The internal trade suffers from the want of good roads and the comparative thinness of the population. The highways however are being gradually improved, and there is now a railway from Christiania to Lake Miösen. Other railways have been projected. Accounts are kept in specie dollars, called *species*, equal to $1.06; marks or *orts*, 0.21\frac{1}{5}$; and *skillings*, $\frac{44}{50}$ of a cent. These coins are silver and copper, there being no gold currency. There is a national bank which issues notes.—Education is upon the whole well cared for. Every parish has its schoolmaster, paid partly by a small contribution from each pupil, and partly from the proceeds of a tax on householders. It is rare to find any one who cannot at least read and write. The towns have superior schools, and there is a university at Christiania attended by about 800 students. The "Society of Public Good" maintains a number of public libraries in different parts of the kingdom, and there are many learned and scientific societies. Great pains is taken by the clergy with the religious education of their parishioners. The religion of the people is Lutheranism almost without exception, and until recently no other was tolerated. All Christian creeds, however, are now permitted to be publicly professed; and, after long debates in the *storthing*, the Jews, too, have been lately admitted into the country. A small body of Quakers has existed at Stavanger in defiance of the laws ever since the beginning of the 19th century. There are a few Roman Catholics in Christiania, but Jesuits and members of other religious orders are rigorously excluded. The established church is governed by 5 bishops, the eldest of whom is primate. The right of presentation to sees and livings belongs to the king, the minister for ecclesiastical affairs, and the Norwegian council of state. The clergy are generally well educated, and their incomes average about $1,000 per annum, which, taking into account the value of money in Norway, may be considered high. The press is perfectly free, and almost every important town has at least one newspaper. There are two or three scientific periodicals.—The government is a hereditary constitutional monarchy. The constitution was drawn up and adopted in 1814. The king of Sweden and Norway appoints for Norwegian affairs a council of 8 Norwegians, with whom rests the responsibility of all executive action. With their consent he may declare war, make peace, and conclude and abrogate treaties. The king must pass some months of every year in Norway, and on his accession to the throne must be crowned as king of Norway at Drontheim. He is required to profess the Evangelical Lutheran religion. The legislative power is exercised by the *storthing*, or assembly of deputies, chosen by popular vote, and meeting triennially. Every male Norwegian 25 years of age and possessing $159 worth of property has the right to vote. Representatives must be over 30 years of age and have been 10 years resident in the kingdom. The storthing consists properly of only one chamber, but its members appoint ¼ of their number as an upper house, called the *lagthing*, while the rest are called the *odelsthing*. Both houses choose their own officers. The king cannot dissolve the storthing until it has been 3 months in session; and, though he may veto any measure, his veto may be overruled by the action of 3 successive storthings. The storthing makes and repeals laws; establishes imposts, taxes, and tariffs; authorizes loans, regulates the finances, votes appropriations, naturalizes foreigners, and examines documents relating to all public business, treaties, salaries, and pensions. There can be no domiciliary visits except in criminal cases, and no *ex post facto* laws. The army is not to be ordered out of the kingdom without the consent of the storthing, and no Swedish or other foreign troops shall enter Norway except to repel invasion; but a Swedish corps not exceeding 3,000 men may pass 6 weeks of each year in Norway ofr the purpose of exercising with the army of the latter kingdom. Norway preserves her own official language, bank, accounts, currency, and flag. The judiciary comprises courts of reconciliation in every parish, the arbitrators being chosen by the householders every 3 years; law courts sitting once a quarter in each of the 64 *sorenscriveries* into which the kingdom is divided; the *stifts amt* in the chief town of each stift, composed of 3 judges with assessors; and the *hoieste ret*, a court of last resort, in Christiania, which is composed of a president and 8 assessors. Capital punishment is not inflicted. The judges are liable in damages for their decisions. The budget voted by the storthing for the 3 years ending June 30, 1860, shows a revenue of 13,888,500 specie dollars, and an expenditure of the same amount, or 4,629,500 specie dollars per annum. The principal items of the annual revenue were: customs, 2,550,000 specie dollars; excise on domestic brandy, 750,000; post office, 351,800; stamps, 75,000; imposts, 192,200; mines, 50,000. The chief items of expenditure were: civil list, 131,000; storthing, 41,292; foreign relations, 98,108; army, 1,000,000; navy, 495,000; justice, 353,393; finances, 767,090; debt, 246,509; ministry of the interior and administration, 1,197,336. The public debt at the end of 1854 amounted to 4,884,300 specie dollars. The army consists of 14,324 men, viz.: infantry 11,924, cavalry 1,070, artillery 1,330. There is also a *landwehr* or militia of 9,160 men. The navy in 1858 consisted of 142 vessels, mounting in all about 450 guns. Of these, 3 were frigates, 5 corvettes, and 125 gun boats.—The history of Norway prior to the 7th century rests upon tradition. The descendants of Odin are represented to have been the first kings, the earliest whose name has been transmitted to us being Sœming. Nor, the scion of an ancient Finnish family, established himself upon the site of modern Drontheim early in the 4th century, and subjugated the neighboring territory. Authentic history begins with Harald Harfager or the Fair-Haired, who subdued the petty kings or jarls of Norway, and united the tribes as a nation (A. D. 863–933). In his conquest he is said to have been animated by the love of Gyda, daughter of the jarl of Hardaland, who vowed not to wed him until he had subjugated the whole country. His victories induced many of the defeated princes to emigrate, and hence began the famous maritime and piratical adventures of the Northmen. (See NORTHMEN.) His son Haco the Good, who had been educated in England at the court of Athelstan, introduced Christianity; but the old religion was not completely eradicated until 3 centuries later. Olaf or Olaus I., who came to the throne in 995 after a successful revolt, brought the sword to the aid of the gospel, destroyed the pagan temples, and laid the foundations of Drontheim. He was killed in battle with the Danes, and for 15 years following Norway was a prey to Swedish and Danish marauders. In 1015 Olaf II. (St. Olaf) determined to complete the work of his predecessor, and persecuted the pagans, though with less cruelty than Olaf I. In 1028 Canute the Great of Denmark and England landed in Norway, drove Olaf out of the kingdom, and was elected king. Olaf subsequently returned with an army, and was defeated and slain at Stikklestad in 1030. His body, according to the legend, having been found incorrupt several years afterward, was removed to Drontheim, and the people made pilgrimages to his tomb until the reformation. Canute deputed his son Sweyn to govern Norway, but after the death of his father Sweyn was driven out by Magnus I., the son of St. Olaf. Harald III., surnamed Hardrada from his severe discipline (1047–1066), invaded England, and, after capturing York, was slain in battle by the English king Harold II. at Stamford Bridge, in Yorkshire, Sept. 25, 1066. His grandson Magnus III. (1087–1103) conquered the isle of Man, the Shetlands, Orkneys, and Hebrides, and invaded Ireland, where he was killed in battle. His son Sigurd I., the great hero of Scandinavian song, is famous for various exploits against the Moors in Portugal and at sea, and for a pilgrimage to Jerusalem, where he offered his arms to Baldwin, and with him reduced and plundered Sidon. His death (1130) was followed by 34 years of civil war, interrupted only temporarily by the efforts of the English cardinal Nicholas Breakspear, afterward Pope Adrian IV., who came to establish an archbishopric at Drontheim, and instituted many excellent reforms. Order was restored by Sverrer in 1184. His illegitimate son Haco IV. was succeeded by Guttorm and Haco V. (called by some of the chroniclers Haco IV.), who subjugated Iceland (1261), and died in the Orkneys after losing a battle at the mouth of the Clyde (1263). The national prosperity of Norway declined from this epoch. Wars with Denmark exhausted the people. A monopoly of trade in the hands of merchants of the Hanseatic league checked the national industry; and a plague, called the black death, which broke out in 1348, ravaged the kingdom to an unparalleled extent, destroying ⅔ of the population. It raged for more than 2 years. The country fell into a decay which was not overcome for centuries. Magnus Lagabæter (law reformer) reigned from 1263 to 1280, and was succeeded by his son Eric II. After the death of Haco VII. in 1319 two Swedish kings obtained the throne successively, Magnus VIII. of Norway and II. of Sweden, and Haco VIII. of Norway, reckoned by some as the 6th of the name. The kingdom lost its nationality. A province first of Sweden, and afterward of Denmark, the country was robbed even of its proper language, which became thenceforth a corrupt mixture of those of its neighbors. Haco

VIII. married the daughter of Waldemar of Denmark, and died in 1380. The crown descended to his infant son, Olaf III. of Denmark, from which period down to the year 1814 the two countries were united. Margaret of Denmark, the "Semiramis of the North," succeeded her son Olaf III., and, having reduced Sweden, framed the "Union of Calmar" (1397), the object of which was to unite the three crowns upon one head. With this view it was stipulated that the subjects of each country should have equal rights under the common sovereign, and should be governed by their own laws. From this period, and in violation of the treaty, the Norwegians lost all their independence. The nobles, wholly supplanted by Danish immigrants, were amalgamated with the peasants, impoverished, exiled, or massacred. The union of Calmar was severed by Gustavus Vasa of Sweden in 1523; and during nearly two subsequent centuries Norway was scarcely more than a province of Denmark. In the reign of Christian I. the Shetland and Orkney islands were transferred to Scotland as part of the dowry (in mortgage of money) of Christian's daughter on her marriage with James III. of Scotland. They were never redeemed. Christian died in 1481. The reformation reached Norway first in 1536. Christian IV. (1588–1648) was more popular in Norway than any other Danish king. He visited Norway more than 50 times; founded Christiania (1624) and Christiansand (1648); and instituted a code of laws, many of which are still in force. After this reign Norway was treated as a conquered province rather than as a joint kingdom; and it was not until the early years of the present century that a brighter day began to dawn. Frederic VI. founded the university of Christiania (1811), and was endeared to the Norwegians by much care of their concerns. Meanwhile the Swedish government had entered into the coalition against Napoleon (April 8, 1812); and by convention with Russia the possession of Norway was guaranteed to Sweden. England also entered into this guaranty, and the newly elected crown prince of Sweden, Bernadotte, according to engagements, took command of the allied forces in Germany. After the battle of Leipsic (Oct. 16–19, 1813), the crown prince led the Swedish contingent into Holstein, with a view to compel the Danish government to cede Norway. A singular system of spoliation prevailed. Napoleon had signed away to Russia the Swedish province of Finland, which did not belong to him. Russia now indemnified Sweden by a present of Norway, to which she had no title; and England offered to Denmark an equivalent in lower Saxony, which was in the possession of France. After the fall of Lübeck and some bloody actions in Holstein, the Danes were forced to the peace of Kiel (Jan. 14, 1814); and Norway was acknowledged as a dominion of Charles XIII. of Sweden. The people of Norway heard of this treaty with great indignation. The Danish crown prince, Christian, perceiving the popular demonstration, hastened to Norway, convoked a national diet, and met them at Eidswold, near Christiania. They offered him the crown of Norway in independent sovereignty, which he accepted, and with it a constitution hastily drawn up on the spot. This was in May, 1814. In July the Swedish crown prince, at the head of an army, invaded Norway by way of Frederikshald. A British fleet appeared off the coast, and blockaded the ports. Resistance was obviously a waste of life and property, and after a few unimportant actions the country submitted. The Danish prince abdicated his new throne; and on Aug. 14 an armistice and a convention were signed at Moss, uniting Norway and Sweden. The Norwegians obtained far better terms than had been designed by the allies originally. The constitution, previously accepted by Christian, was now accepted by Charles XIII. A few disturbances in the northern districts were speedily quelled; and at Christiania the storthing formally ratified the union (Oct. 20, 1814). The constitution of Eidswold, with few alterations, was accepted by the king, Nov. 4, 1814. On the death of Charles XIII., Bernadotte ascended the throne (1818) as Charles XIV. John. He made many unavailing attempts to reduce the country to closer submission to royal authority; and in his great desire to effect alterations of the constitution, he tried every means in vain to win over a majority of the Norwegian storthing. He endeavored twice to obtain, in place of the suspending veto, an absolute one. On other occasions also he was forced to yield to the legislative will. In 1815 the storthing passed a resolution to abolish titles of nobility, a measure which the king refused to approve. The next two storthings passed the same resolution, notwithstanding an appeal of the king in person, and a strong military demonstration on the Swedish frontier; and the royal veto was thus rendered constitutionally null. Some years later the storthing resolved that the people of Norway should be styled citizens of that kingdom. Rarely indeed has a political assembly shown more jealousy of executive privileges. The late King Oscar, who succeeded his father March 8, 1844, was more conciliatory in his policy, and soon obtained a greater degree of confidence. Soon after his accession he gave the Norwegians a separate national flag, which his father had refused. In 1847 he established a Norwegian order of merit, that of St. Olaf. The general feeling of anxiety concerning Russian encroachments brought about an alliance, in Nov. 1855, between Norway and Sweden, England, and France. By this treaty the two Scandinavian powers, in exchange for a promise never to cede or sell territory to Russia or to any power without the consent of England and France, received a guaranty of future territorial integrity under protection of the last named powers. In 1857 King Oscar, in consequence of bad health, transmitted the government to his son Charles Louis Eugene as regent, who on the death of his father, July 8, 1859, ascended the throne with the title of Charles XV. Soon after the opening of the parliament or storthing by the new king (Oct. 6), the old antagonism between the democratic spirit of the Norwegians and the aristocratic character of the Swedes manifested itself in the rejection of the request of the king to reduce the time of his annual residence from 9 months, at which it is fixed by the constitution, to 6 months, and in withdrawing from him (Dec. 12, 1859) the right of appointing a governor of Norway, that office to be filled in future by a minister of state. A motion, however, to make the meetings of the storthing annual instead of triennial, was rejected by that body (Feb. 23, 1860); but the excessive spirit of independence shown in other respects, particularly in regard to the appointment of governor, has given rise to considerable discussion in Sweden, and tends to complicate the relations between the two countries. The king was crowned at the ancient cathedral of Drontheim in Aug. 1860.

NORWAY, LANGUAGE AND LITERATURE OF. The *Norræna Tunga*, now known as the Icelandic, both because it is still spoken in its purity in Iceland, and because nearly all its extant literature is the work of Icelanders, was the common language, with only trifling variations of dialect, of Denmark, Norway, and Sweden down to the middle of the 13th century. Norway, in consequence of her remote situation, retained the old tongue longer than either of her sister kingdoms. The few mediæval Norwegian documents, consisting chiefly of letters and codes of laws, do not exhibit any important grammatical changes until about the time of the annexation of Norway to Denmark toward the close of the 14th century. But from this period the influence of the governing nation was so great that a rapid transformation took place, and soon after the beginning of the 16th century the written language and the speech of the higher classes became identical with those of Denmark. Outside of the large towns and among the peasants, however, the Danish has never been the spoken tongue, but the old Norræna has been corrupted into a number of dialects, diverging more or less in their structure from their ancient original. From these dialects some patriotic Norwegian philologists, since the separation from Denmark, have attempted to construct a national tongue; but beyond the compilation of a grammar and dictionary, and the publication of a small newspaper and a few pamphlets, their efforts have met with but little success, owing in part to the great differences in the dialects themselves. The Danish is still the language of society, of the pulpit, and the press, and continues to be taught in the schools. The Norwegian dialects, according to Aasen, may be classified in three divisions, corresponding to the natural divisions of the country: the *Nordenfjeldsk* group, comprising those spoken in the province of Drontheim and the extreme northern provinces; the *Vestenfjeldsk* group, or those spoken west of the mountains in Bergen and the western portion of Christiansand; and the *Söndenfjeldsk* group, including those spoken in southern Norway, or to the east of the mountains. Of these three divisions, the second approaches the nearest to the Icelandic, the isolated localities and little frequented valleys along the western fiords having been favorable to the preservation of the ancient speech; while the last named, lying nearer to Christiania, has been the most largely influenced by the Danish. All of them possess some peculiarities in common, which distinguish them from the written speech. The old diphthongs, *au*, *ei*, *öy*, are retained; the hard consonants *k*, *t*, and *p* are placed after as well as before vowels; a distinction is made between the terminations in *a* (*ar*) and those in *e* (*er*); although the genitive form of the noun is generally lost, the old dative is often retained; the distinction between the masculine and feminine genders of substantives, nearly or quite lost in Danish and Swedish, is still marked; and the definite article (Icelandic *hinn*, *hin*, *hit*) requires the substantive which follows it to take the definite termination also, as is still the case in Swedish but not in Danish.—Norway, although she has given to Denmark such writers as Holberg and Storm, and to Germany such scholars as Steffens and Lassen, cannot be said to have had a distinct literature until after her political union with Sweden. Before that date the writings of her poets, historians, and naturalists properly form a part of Danish literature. The foundation of the university of Christiania in 1811, and the complete establishment of political independence in 1814, gave an energetic impulse to the national spirit, and with these two events the records of Norwegian literature begin. The organization of an independent government in a land which for more than 4 centuries had occupied the position of a province, naturally enough turned the minds of men first of all to the discussion of the principles of political economy and jurisprudence. The literature of Norway for 10 or 20 years after the union consisted chiefly of political essays, legal tracts, treatises on agriculture and manufactures, and text books for popular instruction. Among the noted publicists and economical writers are C. M. Falsen (178[illegible]) and Sverdrup (born 1773), both of whom were prominent members of the constitutional convention of Eidswold; Ræder, Mariboe, Petersen, Platou, Daa, and Blom; and F. Monrad has lately given to the public a large work on the history of political science. Keyser and Munch have critically and philologically edited the ancient Norwegian codes of law; Schweigaard has written commentaries upon the present jurisprudence; Aubert and Ræder have treated of the principle of jury trial; and other juridical writers of eminence are P. C. Lasson, Smidt, Bull, and Brandt. Beside the numerous and careful *Statistiske Tabeller* annually issued by the government, J. E. Kraft (born 1784) published a topographical and statistical description of the kingdom (6 vols., 1820–'35); Tvethe issued his *Norges Statistik* in 1848; and in the department of social statistics the treatises of Eilert Sundt are well known. In physics several Norwegians have achieved a European reputation. The discoveries of Christopher Hansteen (born 1784), which were made known in 1819, mark the commencement of a new period in the study of the phenomena of terrestrial magnetism. In the *Gæa Norvegica* of B. M. Keilhau (1797–1858), in which the author published his geognostic map of Norway, and in the account of his journey to Finmark and Spitzbergen, large additions were made to geological science. Theodor Kjerulf, a writer of equal ability, has succeeded Keilhau in the professorship of geology at the national university. The explorations of Jens Esmark (born 1763) among the Norwegian mountains resulted, according to Forbes, in some novel and well founded theories on the formation and structure of glaciers; and J. C. Hörbye has treated (1857) with great clearness the subject of the erosion of mountains. The leading botanists have been Christen Smith (1785–1816), whose travels in the Congo region of Africa were first published by the British government; Sommerfeldt, who, beside a treatise on the cryptogamous plants of Norway, gave to the world in 1826 a large supplement to Wahlenberg's "Laplandic Flora;" and Blytt, the first part of whose *Norsk Flora* appeared in 1847. In zoology the splendid work of Michael Sars, a Norwegian *Fauna Litoralis*, now in process of publication, is widely known. Halvor Rasch has also written several small but noteworthy treatises on the same subject. The mathematical writings of N. H. Abel (1802–1829), whose early death was a severe loss to science, have been translated into French; other authors of distinction in the same branch are B. Holmboe and O. J. Broch. In 1848 Danielsson and Boeck published, in Danish at Christiania and in French at Paris, the important results of their investigations into that singular disease, *spedalskhed* or elephantiasis, which is prevalent in Norway and Iceland; and during the present year (1860) their work has been followed by another essay of great value by Bidenkap. Boeck was the first to advocate inoculation in syphilitic diseases; F. Holst (born 1791), a physician and statistician, greatly contributed by his treatises on the subject to the improvement of the Norwegian hospitals and prisons; and Skjelderup published one or two volumes of interest to the medical student. The schism produced by the labors and writings of Hauge (1771–1824), and the freedom of religious worship secured by the Norwegian constitution, have tended to produce many theological writers of ability. Among the most noted are W. A. Wexel, whose writings are chiefly exegetical; S. J. Stenersen (died 1835), whose numerous works are principally of a popular character; and K. P. Caspari, born at Dessau in 1814, but for many years attached to the university of Christiania, whose commentary on Isaiah and whose learned monograph *Ueber Micha* have been widely circulated both in Norway and Germany. Metaphysics have been little cultivated, and the only authors of note are M. J. Monrad and C. Heiberg. The history, philology, and antiquities of Norway have been studied with unflagging zeal. Jacob Aall (1773–1824) translated the voluminous chronicles of Snorro Sturleson, beside leaving to posterity an interesting record of his own times in his *Erindringer* or memoirs; A. Faye published a history of Norway in 1844; Rudolph Keyser followed up his account of the religion of the ancient Northmen (translated by Pennock, New York, 1854) with a more extensive work on the history of the Norwegian church during the Catholic period; C. A. Lange and C. R. Unger are editing a *Diplomatarium Norvegicum;* and the ancient remains scattered throughout the country have been illustrated by Nicolaysen and others. But by far the most important national historical work is *Det norske Folks Historie*, by Peter Andreas Munch (born 1810), of which the 4 stout volumes already issued come down to the close of the 14th century. In 1847, by the publication of Munch's edition of the elder Edda, and a grammar and chrestomathy of the old language, was founded the Norwegian school of philology, whose national zeal has led to many warm disputes among the Scandinavian philologists. Its members, from the outset, boldly asserted that the pure Norræna was never spoken anywhere on the mainland but in Norway; that the old Swedish and old Danish were distinct tongues, and that, therefore, the language of the Eddas and Sagas should be styled Old Norwegian (*Old-norsk*), and not Old Northern (*Forn-nordisk, Old-nordisk*), or Icelandic, as it is called in Sweden and Denmark. They did not confine their claims to the language alone, but extended them to the literature. All those mythological, historical, poetical, and romantic writings which were produced by the pens of the Icelandic skalds and sagamen in the golden age of the insular republic were decided to be not Icelandic but old Norwegian, on the ground that Iceland was originally peopled by colonists from Norway. The Icelanders, who saw themselves thus deprived at a blow of what constitutes their chief national glory, and the Danes and Swedes, who were thus shut out from all share in that ancient language which their scholars have so ably illustrated, did not hesitate to protest against the assumptions of the Norwegian school. Although the peculiar doctrines of the Christiania writers have met with but little support outside of Norway, yet their many able editorial and grammatical labors deserve the gratitude of all those interested in the study of the Icelandic. The works of P. A. Munch, C. R. Unger, and R. Keyser, the leaders in this new philological movement, comprise, among others, a treatise on the oldest form of runic writing, a Gothic and an Old Swedish grammar, and editions of *Fagr-skinna* (1847), *Alexandurs Saga* (1848), *Saga Olafs hins Helga* (1849), *Strengleikur* (1850), *Aslak Bolts Jordbog* (1852), *Stjórn* (1853), *Saga Olafs Tryggvasonar* (1853), and of the important *Saga Didriks af Bern*. Ivar Aasen has published a *Grammatik over det Norske Folkesproget* (1848) and an *Ordbog* (1850). C. A. Holmboe (born 1796) has bestowed an important contribution upon comparative philology by his "Comparative Lexicon of several of the Indo-European Tongues" (Vienna, 1852), and by other works. The dialects of the Laplanders who live under the Norwegian crown have been laboriously studied by N. J. C. V. Stockfeth (born 1787), a distinguished missionary, and by I. A. Friis, whose *Lappisk Sproglære* was issued in 1852. In classical philology the chief laborer is L. C. M. Aubert. The poems and dramas of H. A. Bjerregaard (1792–1842) are national in spirit, but lack originality and brilliancy. Henrik Arnold Wergeland (1808–'45) was for a long time the favorite poet of the Norwegians, and a complete collection of his works in 9 volumes has just been published. J. S. Welhaven (born 1807) has published a great number of lyrics and several historical dramas, principally founded on national subjects. Andreas Munch (born 1811), a cousin of the historian, by his poetical and dramatic productions has rendered himself the most popular of the living poets. His *Digte* (1848), *Nye Digte* (1850), *Reisebilleder* (1851), and *Sorg og Tröst*, are his chief works. M. C. Hansen (1794–1842) produced a multitude of poems and romances, beside several works on other subjects. P. C. Asbjörnsen and J. Moe, in their *Folkeeventyr* and *Huldreeventyr* (2d ed. 1859), have collected the popular tales which have been orally preserved by the Norwegian peasants for many generations; and M. B. Landstad and Sophus Bugge have each edited collections of the old popular ballads. Among the younger poets, the best known are J. Moe (the author of *Gammelt og Nyt*, or "Old and New," a collection of poetry and novels, published recently), Kjerulf, Schiwe, Bentsen, Schwach, and Sivertson, and the dramatic writers C. P. Riis, H. Ibsen, and R. Olsen. Two novelists have above all others recently attracted attention; these are Björnsterne Björnsen, whose *Synnöve Solbakken*, a tale of Norwegian peasant life, has met with great success; and Mrs. Camilla Collet, whose novel *Amtmandens Döttre* (1854–'5) has gone through several editions. The leading scientific journals of Norway are the *Journal for Videnskaberne*, edited by Hansteen, Lundh, and Maschman since 1828, and the medical *Journal for Lægevidenskaberne*. There were 52 daily and weekly journals published in Norway at the end of 1859, of which 12 were issued at Christiania. The increase of the literature is shown by the fact that the number of works published for the 7 years before 1834 averaged 76 annually, in the following 7 years 91, in the next 7 years 133, and, in the 7 years preceding 1854, 146. Between 1848 and 1854 there were 1,023 works published, 791 in Christiania, 100 in Bergen, and the remainder in other towns, of which 870 were original, 139 translations, and 14 new editions. A literal reprint, for the first time exact and complete, of the well known *Flateyjarbok* (*Codex Flatoriensis*), containing all sorts of historical and legendary lore, in prose and verse, formal and episodical, concerning Norway, Iceland, and the whole north, England included, is in course of publication with the assistance of the Norwegian government, the first part of which appeared in Christiania in 1859. The publication of a posthumous work by J. E. Kraft, entitled *Norsk Forfatter Lexikon*, a complete Norwegian bibliography, was commenced in 1[illegible] under the editorship of C. A. Lange.

NORWICH, a semi-capital of New London co., Conn., at the head of navigation on the Thames river, 13 m. N. from New London, [illegible] m. S. E. from Hartford, and 58 m. N. E. from New Haven; lat. 41° 33′ N., long. 72° 7′ W.; pop. in 1860, 14,052. It is divided into 3 parts, Norwich city, or Chelsea Landing, the Town, and Greeneville. The first is handsomely built and picturesquely situated on a steep hill facing the S., and lying between the Yantic and Shetucket rivers, whose junction forms the Thames, and which afford extensive and valuable water power. The houses are generally white, and, rising in terraces one above the other, can be seen from a considerable distance down the river, whose elevated banks lend additional attraction to the view. The Town lies to the N. W. in a pleasant valley surrounded by hills; and Greeneville, which contains numerous manufacturing establishments, is N. E. of the city. In 1860 there were 85 manufacturing establishments, employing a capital of $2,655,200, and producing annually $4,152,[illegible] worth of goods. The manufactures consist principally of cottons. Woollens, paper, and machinery are also largely produced. Beside the county offices there were 6 banks, 2 savings banks, 4 insurance companies, 2 weekly newspapers and one daily, and 17 churches, of which 3 were Baptist, 3 Congregational, [illegible] Episcopal, 3 Methodist, 1 Roman Catholic, and 1 Universalist. There were 39 public schools, 5 private schools, and a free academy. The public schools and academy contained 2,[illegible] pupils, and the sum of $15,824 was raised from taxation and other public sources for their support. The free academy was built and endowed by the private subscription of $11[illegible] by residents of the town, and is open for a full academical education to all the children of the town, free of expense to them, and without regard to sex or condition. At the falls of the Yantic, about 1 m. from its entrance into the Thames, the river is compressed into a narrow channel, and rushes over a rocky bed having a perpendicular descent of about 50 feet. Yantieville in the vicinity is an active manufacturing village. At Greeneville is the paper mill of the Chelsea manufacturing company, one of the largest in the world. There is extensive railroad communication by means of the Norwich and Worcester, and New London, Willimantic, and Palmer railroads, and regular steamboat lines connect with New York.—Norwich was settled in 1659. In that year Uncas and his two sons made a formal deed of the site of the old town, 9 m. square, to Major John Mason and 34 other proprietors, and received from the company £70 as a compensation. Its settlement was begun by Major Mason and the Rev. James Fitch, who, with a part of his congregation, removed from Saybrook.

NORWICH (anc. *Venta Icenorum*), a city, municipal and parliamentary borough, and the capital of the county of Norfolk, England, situated on the Wensum river, 98 m. N. E. from London; pop. in 1851, 68,706. It is a place of great antiquity, and was already a flourishing town in the time of Edward the Confessor. It is still surrounded by fragments of its ancient walls, which were flanked with towers and entered by 12 gates. The streets are narrow and mostly unpaved, and the houses are built of brick with rude pointed gables; but the market place is one of the largest in the kingdom. The celebrated cathedral of Norwich, founded in 1094, and chiefly of Norman architecture, is a cruciform structure, with a tower (restored in 1858) and spire rising from the intersection of the nave and transepts to the height of 315 feet. There are 40 other churches, and 22 dissenting chapels. Of the churches the most remarkable are St. Peter's Mancroft (where Sir Thomas Browne was buried), St. Andrew's (built in 1506), St. Clement's, St. George's, Colgate, St. Giles's, St. Michael's, Coslany, St. Gregory's, St. John's Maddermarket, St. Lawrence's, and St. Stephen's, all built before the reformation with the exception of the last. Among the other public buildings of importance are the castle, a feudal structure of Norman origin, and the guildhall. Norwich is the most ancient manufacturing town in the kingdom, and has been noted for its woollen fabrics since the reign of Henry I., when a colony of Flemings settled there, and obtained long wool spun in the village of Worsted, 9 m. distant, whence the produce took its name. The leading manufactures are shawls, crapes, bombazines, muslin de laine, damasks, camlets, gros de Naples, and bandanna handkerchiefs. Norwich sends 2 members to parliament.

NOSE, the organ of the sense of smell in vertebrated animals, and in the 3 highest classes connected with the respiratory function. Of the 14 bones which enter into the composition of the cavities of the nose in man, the principal are the nasal, attached more or less perpendicularly to the frontal bone above and to the superior maxillary on the sides; in the lower orders these bones become more horizontal and more developed, as the face and animal propensities predominate over the cranium and the intellect. The nasal cavities, bounded in front by these bones, and separated into two by the vomer, open widely anteriorly to the external air and posteriorly into the back part of the mouth; the upper wall is pierced by numerous foramina, through which enter the filaments of the olfactory or nerve of smell; the lower wall forms the bony roof of the mouth, and is nearly horizontal; the outer wall is divided into the superior, middle, and inferior meatuses by the turbinated bones, into the 1st of which open the posterior ethmoidal and sphenoidal sinuses, into the 2d (much larger) the frontal and anterior ethmoidal sinuses and the great cavity of the antrum, and into the 3d the duct of the nasal canal which conveys the tears from the eyes to the nose; from the last also the Eustachian tube, by which the tympanic cavity of the ear communicates with the throat, may be most easily entered, as is frequently necessary in aural surgery; the *septum* or inner wall is rarely vertical, but generally leans to one side or the other. The suture of the nasal bones in man remains ununited generally until very late in life, in this differing from the condition in the highest apes, in which they are very early consolidated into a single bone with hardly a trace of suture; their inner border is also elevated, so that the depressed nose of the negro has never the flatness of that of the gorilla and chimpanzee. The external prominent part of the nose, which gives the character to the feature, is composed of several cartilages, connected to the bones and to each other by strong fibrous tissue, sufficiently firm to preserve the shape of the organ, and so elastic and flexible as to permit the expansion and contraction of the nostrils in respiration; at the tip of most noses, on the median line, may be felt a fossa or depression bounded on each side by the lateral cartilages, which, with the absence of rigidity, some ethnologists have made characteristic of certain human races, like the Malay and negro. The varying expression given to the face by the movements of the nose depends on the action of its muscles, attached to the cartilages, skin, and upper lip; most of the expressions arising from these movements are disagreeable, indicating either contempt, anger, fear, or pain. The openings of the nose are provided with stiff curved hairs, which prevent the entrance of many particles floating in the air. The lining mucous membrane, called the Schneiderian or pituitary, extends into the antrum and the frontal and other sinuses; it is for the most part well supplied with vessels, especially veins, communicating with those within the skull, so that bleeding at the nose is a common and beneficial termination of cerebral congestion from any cause; it presents also numerous glandular follicles, whose secretion is well known, and receives the filaments of the nerves of smell and of common sensation. The soft olfactory nerves or nerves of smell arise from the anterior lobes of the cerebral hemispheres, and their bulbs rest on the cribriform plate of the ethmoid bone, which the branches pierce to the number of 15 or 20 on each side, and then running under the mucous membrane are distributed principally to the septum and outer wall of the nose, communicating with filaments from the sympathetic cerebral ganglia. Beside its special sense of smell, the nose has its ordinary sensation like other parts of the face, depending on filaments of the trifacial or 5th pair of cerebral nerves; that these two sensations are distinct may be experienced every time we have a catarrh in the head, in which, though the sense of smell, or the perception of odor and flavor (the latter constituting a great part of what is generally called taste), may be greatly impaired, the common sensation, or the susceptibility to the action of snuff and other irritants, is not at all diminished. The motor nerves of the nasal muscles are branches of the facial or 7th pair of cerebral nerves; the arteries are derived from the ophthalmic, internal maxillary, and facial branches of the carotids. The nose is the proper channel through which in most vertebrates air is drawn into and expelled from the lungs; in man the mouth also is used in respiration, but with what discomfort is known to all who are in the habit of sleeping with the mouth open; while the mouth soon becomes dry from the passage of air over its membrane, no such inconvenience is experienced from breathing through the nose for any length of time, in the condition of health; dust and other foreign particles, which get by the hairs of the nostrils, are caught in the irregularities of the nasal passages and arrested by the moisture of the membrane, so that we can breathe for some time in a cloud of dust without any passing into the lungs; the horse, and many other animals naturally exposed to dust, have the nasal passages better provided than those of man for the protection of the lungs; the moustaches also are natural and efficient appendages for the comfort of the air passages. The acute sensibility of the nose detects any impurity in the respired air, whether odorous or irritating, and warns man and animals of the presence of danger, or by the act of sneezing removes any injurious particles which may accidentally have entered the nose.—The nose forms one of the characteristic features of the human face, and by physiognomists has been regarded as a faithful index of character. The sense of smell is less developed than that of sight in man, and in comparison with that of some other animals is very feeble, and the more so in proportion to the elevation of the race in the scale of civilization; the blind have a more acute sense of smell to compensate for the deficiency of sight; the Mongolian, the negro, and the American Indian have a greater development of the internal cavities of the nose than the white races. In man only does the nose project beyond the level of the upper jaw, the opening of the nostrils being horizontal and downward; even in the highest apes this feature is flat, and the nasal orifice vertical and forward. The ethnological characters derived from the shape of the nose are given in the articles on the different races, and in ETHNOLOGY. In fishes, breathing by gills, there is no communication between the nose and the mouth or throat, except in the myxinoids; in batrachians and reptiles, all of which, in the adult state, breathe more or less by lungs, the nose and mouth communicate, by a short passage as in the frog, or by a long one as in the crocodile; in birds the nostrils open on the back of the bill, generally nearest the base, and frequently covered by bristly feathers to prevent the entrance of foreign bodies, and they communicate with the mouth behind; in mammals only are found the sinuses and cellular cavities in the frontal, sphenoid, ethmoid, and superior maxillary bones, larger in some than in others; the nasal cartilages are often widely different from those of man, as may be seen in the movable snout of the mole and hog, and in the proboscis of the tapir and elephant, which are only modified and largely developed noses; in cetaceans the nasal openings are on the top of the head, constituting the blow-holes.—There are many congenital defects in which the nose is concerned. It may be almost entirely deficient, partially developed, closed in front, or fissured below; the septum may be distorted or absent; or the organ may be monstrously developed, as noticed under CYCLOPISM. The skin of the nose is subject to cutaneous eruptions; the numerous small veins may be dilated, giving a red color to the tip, which, from the disturbance and retardation of a naturally slow circulation, is very difficult to remove. In common colds the mucous membrane is gorged with blood, and often so thickened as to interfere with respiration through the nose, and even to close the posterior passage to the throat. Abscesses, chronic thickening, deep ulcerations, ozæna, lupus, polypus, and cancer are common in this organ, and can only be alluded to here. Some of the greatest triumphs of modern reparative surgery may be found in the history of rhinoplastic operations, in which skin from the forehead or cheek has been dissected up, partially twisted, and caused to unite over the nasal cavities laid bare by accident or disease. (See AUTOPLASTY.)

NOSTRADAMUS, MICHEL DE, a French physician and astrologer, born of Jewish parents in St. Rémy, Provence, Dec. 14, 1503, died at Salon, July 2, 1566. He studied the classics and philosophy at Avignon, and medicine at Montpellier, and afterward travelled in the south of France for 5 years. He then returned to Montpellier, took the degree of M.D. in his 27th year, and again set out on his travels. He was very successful in curing the plague in Provence by means of a powder which he invented. About the year 1547 he began to believe himself inspired with prophetic powers. He first wrote his predictions in prose in very enigmatical style, but afterward changed the form to verse, and in 1555 published in Lyons 4 "Centuries" of quatrains, dedicated to his son, an infant. Having increased these to the number of 1,000, he published a new edition in 1558 dedicated to King Henry II., whose remarkable death in a tournament the following year was found to be foretold therein, which greatly increased his fame. He became very celebrated throughout France, was made physician in ordinary to Charles IX., and was consulted by all classes of persons for diseases and for the foretelling of fortunes and public events, as plagues, fires, floods, victories, and the death of kings. By some he was regarded as a charlatan, by others as having intercourse with the devil, and by others as a true prophet. He was said to have predicted the death of Charles I. of England and of Louis XVI., and the elevation of Napoleon to the empire of France. He was an intimate friend of Scaliger. Nostradamus is said to have been the first to publish almanacs containing predictions of the weather, &c., and was the author of several other works now forgotten. His "Centuries" have been often reprinted and translated. The best edition is that of Lyons (8vo., 1568).—His son César was the author of *Histoire et chronique de Provence* (Lyons, 1614); and his brother Jean wrote *Vies des plus célèbres et anciens poëtes Provençaux* (Lyons, 1575).

NOTABLES, Assembly of. See France.

NOTARY PUBLIC, an officer appointed to draw up and attest deeds and contracts, and perform other similar functions. The name and office of notary are of Roman origin. The *notarii*, so called from the *notæ* or short-hand characters in which they minuted the instruments which they drew, had not a public character. They were mere scribes, it seems, whose calling it was to write out at their tables in the forum the agreements of those who addressed themselves to them. The writings thus composed were completed by the signatures of the parties. Unless these signatures were attested by witnesses or verified by proof of the handwriting, the instruments could have no authority in the courts. But it was possible to render them valid, and thus to escape the annoyance of these modes of confirmation, by a declaration of their tenor before a magistrate and by registration of them in the public records, *apud acta*. Like the *notarii*, but more like the notaries public of the present day, were the *tabelliones forenses*. They drew up legal documents and papers, and various kinds of declarations and statements to be sent to the courts of law or presented to different civil authorities. The *tabelliones* formed themselves into a guild under a presiding officer. A constitution of Diocletian prescribed a tariff of fees for them. As the craft grew in importance, the state began to exercise a control over them, and prescribed the terms of admission and removal of the members. Laws were made to define the legal effect of the instruments which they framed. It was required that the *tabellio* be present at the execution of the instrument, and affix to it his signature and the date. Three witnesses must also subscribe their names ordinarily, but 4 were necessary if the principal parties could not read.—In imitation of these Roman officers, the Frankish kings created notaries, and guarded by laws against the abuse of their functions. During the middle ages notaries were appointed directly by the popes or emperors, or at least under their immediate authority. In France, by an ordinance of 1312, Philip the Fair forbade for the future the creation of notaries to all except prelates, barons, and those to whom appointment pertained as an ancient right in virtue of their estates. From that time onward notaries were invested in France with a qualified judicial character. They had authority, for example, to insert in the memoranda of obligations a clause granting summary execution to the creditor in case of a non-fulfilment of the contract. But this voluntary jurisdiction which notaries had so long possessed in France, was taken from them by the legislation of the republic. They are now public officers, formally recognized indeed as sharers in the civil administration, but deriving their authority from and representing rather the crown than the courts. They are commissioned for life, and can be removed only by judicial decree. They are authorized to draw instruments of various characters; and in matters which are of more than private importance, they retain in their custody the original drafts and furnish copies of them to the parties concerned. They are often employed under the direction of the courts in making out inventories and in the distribution of estates, and perform those notarial acts which are required by law in respect to wills, gifts, marriage contracts, and protests. Notarial chambers, which consist of deputies chosen by the profession, regulate the rules of practice, decide upon the admission of candidates, and punish members who are guilty of abuse of their office. All documents which were executed in the presence of two notaries, or of one notary and two witnesses, and are attested by them, receive full credence in all courts of law.—In Germany, the *Notariatsordnung*, which was issued in 1512 by the emperor Maximilian I., still partially defines in some states the powers of notaries. They are legitimated by diploma or commission, and on assuming their office adopt a seal which they cannot change without judicial permission. Their official duties consist generally in the preparation of contracts and the drawing of wills; in the authentication of deeds and powers; in framing appeals and inventories; in making protests upon mercantile paper, and in taking testimony for the courts. Writings which are certified by a notary and two credible witnesses, in the prescribed form, are equal in force and effect with public records.—Notaries were known in England before the conquest. Little mention is made of them during the two or three next succeeding centuries. In the early part of the 14th century, however, they seem to have been commonly employed, for in 1347 we find them frequently named in the petitions of the commons to the king. Ever since that time, the office has been one of prominence and importance. Until very recently, as a public officer of the civil and canon law, the English notary derived his authority to practise from the court of faculties of the archbishop of Canterbury. The ecclesiastical courts were abolished by the statutes 20 and 21 Victoria, c. 77, 85; but these acts did not affect the notaries. The terms of their admission into the faculty of notaries are prescribed by the act 41 George III., c. 79, amended by the 3 and 4 William IV., c. 70, and 6 and 7 Victoria, c. 90. Their authority extends to the drawing of deeds relating to real and personal property, to protesting bills of exchange, authenticating and certifying copies of documents, and to the attestation of instruments going abroad. They receive the affidavits of mariners and ship masters, and draw their protests. English notaries have always considered themselves competent to administer oaths and affirmations.—The functions of notaries in the United States are similar to those exercised by the same officers in England, though in general they seem to be limited in practice to the attestation of writings of a mercantile kind, and to the protestation of bills and notes. They are usually commissioned by the executive of their states, and derive their particular powers from statute provisions. In Rhode Island they are elected annually by the general assembly. In New York the statute which defines their powers in respect to foreign and inland bills, drafts, and notes, confers upon them the further authority "to exercise such other powers and duties as by the law of nations and according to commercial usage, or by the law of any other state, government, or country, may be performed by public notaries." In New Hampshire, in addition to the usual powers of the office, notaries may take depositions, and acknowledgments of deeds before them have the same validity as those made before justices of the peace. Similar provisions are found in the statutes of Connecticut and Rhode Island; and in the former state notaries are expressly empowered to administer oaths. In those states where the powers of these officers are not distinctly set forth, it may be supposed that they include such acts as attach to the office by general mercantile usage.—In respect to the value of notarial acts in evidence, it may be remarked, in the first place, that the admissibility in evidence of notarial acts done in a foreign country, and their authenticity, rests solely on the ancient mercantile usage, which makes what may be termed the commercial law of nations. In respect to bills of exchange and similar paper of merchants, there is no doubt of the effect of notarial acts. It is the rule as well of the English as of the American law that the minutes of a foreign notary of his protest for non-acceptance, when attested by his signature and notarial seal, are full proof of these facts, and require no auxiliary support. But the principle that the foreign notary's certificate is conclusive evidence only of such acts as he does under the law merchant, has been upheld in a case where a deed of partition made and acknowledged before a foreign notary was pronounced insufficient in respect to the acknowledgment; and in England the certificate of an American notary under seal of the execution of a power of attorney in his presence was not admitted as evidence of the fact, though the notary's certificate was verified by the British consul. Independently therefore of special laws, which in some states indeed give validity to acknowledgments and the like acts if done before foreign notaries, no certificates of theirs which concern matters foreign to the mercantile law will be recognized as evidence. The protest of a promissory note at home is not an official notarial act, as the protest of a foreign bill of exchange is; and therefore, after the notary's death, the note of such a protest is not of itself competent evidence in chief. Yet when it is duly authenticated by signature and seal, it will be admitted as secondary evidence of the notarial acts which it recites. So the memoranda entered in the office books of the notary, either by him in person or by his clerk in the ordinary course of business, are admissible in evidence when the party is dead who could directly speak to the fact. In some states, as New York, the competency and legal effect of notarial acts are determined by statute.

NOTHOMB, Jean Baptiste, baron, a Belgian statesman, born at Messancy, in the grand duchy of Luxemburg, July 3, 1805. He was educated for the law, but in 1828 became one of the proprietors of the *Courrier des Pays-Bas* newspaper, in which he energetically assailed the Dutch administration, and advocated the necessity of a separation between Belgium and Holland. After the revolution of Sept. 1830 the provisional government appointed him one of the committee on the constitution, of which he was made secretary. He was a member of the national congress convened to decide upon the form of government, in which he resisted both the republican and Catholic parties, and aimed at the establishment of a constitutional monarchy. In this he acted in concert with MM. Lebeau, Devaux, Charles Rogier, and Van de Weyer. In the election of a king, he first favored the duke of Nemours, son of Louis Philippe; but this candidate having withdrawn, he supported Prince Leopold, who was chosen by a large majority. In the conference which met at London to settle the affairs of Belgium, Nothomb bore an influential part. He was general secretary under the minister of foreign affairs until 1834, when, on the resignation of M. Lebeau, he was appointed *ad interim* to that ministry. In 1837 he was minister of public works in De Theux's Catholic cabinet. Through his efforts an admirable system of railways was established in Belgium. On the fall of M. de Theux in 1840, Nothomb sent in his resignation, and was appointed envoy extraordinary and minister plenipotentiary to the German confederation. The liberal ministry of Lebeau lasted but a few months, and a more moderate cabinet was formed in which Nothomb took the home department. In 1843 he became the head of a new administration, which, holding the balance between the liberals and the Catholics, lasted for two years, but finally succumbed to a coalition of both the opposition parties. Nothomb was now sent as ambassador to Berlin, a position which he still holds. He published in 1833 a pamphlet entitled *Essai historique et politique sur la révolution Belge.*

NOTORNIS (Gr. νοτος, south, and ορνις, bird), a large bird of the rail family, established by Owen in 1848 (see "Transactions of the Zoological Society," vol. iii. p. 366) on a nearly entire skull sent with those of the dinornis from New Zealand. The natives had traditions of the existence of a large rail-like bird which they called *moho*, contemporary with the *moa* or dinornis, but it was by them considered extinct like the latter. This bird, which Owen called *N. Mantelli*, was known only by the occasional occurrence of its bones, until Mr. Walter Mantell, in 1849, obtained a skin from the Middle island of New Zealand. A specimen was there taken alive by some sealers after a long chase; it ran very rapidly, and when captured screamed and struggled violently; after having been kept 3 or 4 days, it was killed, and its flesh found delicious; the skin was sent to England, where a description was made by Mr. John Gould, confirming entirely the opinion of Owen based upon the bony structure. (See "Annals and Magazine of Natural History," 1852, vol. ix., pp. 231-6, taken from "Proceedings of the Zoological Society," part xviii., 1850.) The bird had the aspect of a large *porphyrio* in the bill and the color, but had the moderate feet of *tribonyx*, with the rudimentary wings and tail of an ostrich. The length was 26 inches, the bill to gape 2⅓, the wing 8⅓, and the tarsi and tail each 3⅓; the bill was shorter than the head, much compressed on the sides, with the culmen elevated and arched, extending on the forehead as far as the posterior angle of the eye; wings very short, rounded, slightly concave; the primaries soft and yielding, the 1st short, and the 3d to the 7th equal and longest; feathers of tail soft and loose; tarsi powerful, almost cylindrical, very broad in front and defended by wide scutellæ; anterior toes large and strong, shorter than the tarsus, with powerful hooked nails; hind toe short, strong, rather high up, with a blunt hooked nail. The head, neck, breast, upper part of abdomen and sides purplish blue; back, rump, upper tail coverts, lesser wing coverts, and tertiaries dark olive green tipped with verditer green; on the nape a band of rich blue separating the purplish blue of the neck from the green of the body; wings rich deep blue, the greater coverts tipped with verditer green; tail dark green; lower abdomen, vent, and thighs bluish black; under tail coverts white; bill and feet red. From the thickness of the plumage, and the great length of the feathers of the back, it is believed that this bird inhabited marshy places and coverts of damp ferns; it was essentially terrestrial, yet probably able to swim; though unable to fly, it was a very rapid runner; it was doubtless very shy, keeping concealed, naturally or to avoid enemies, in the darkest and thickest recesses of the islands. This is a very interesting addition to the list of wingless birds, like the dinornis, dodo, and kiwi-kiwi (*apteryx*), which have become extinct since the advent of man, or are on the verge of annihilation by human agency; it is also a striking example of the accuracy with which the naturalist can construct an animal, and determine its family and almost its generic characters, from the examination of a few bones.

NOTT. I. ABRAHAM, an American judge and politician, born in Saybrook, Conn., in 1767, died in Fairfield, S. C., in Jan. 1830. He was graduated at Yale college, and studied for the ministry, but did not take orders. About 1788 he proceeded to Georgia, where he was occupied for a year as a teacher. He studied law in Camden, S. C., was admitted to the bar in 1791, married in 1794, and settled on a plantation on the Pacolet river, but continued the practice of his profession. In 1800 he was elected to congress by the federalist party, and was one of those who repeatedly gave the vote of South Carolina for Burr against Jefferson. He practised law with eminent success in Columbia, S. C., from 1804 to 1810, when he was elected one of the judges of the court of appeals. II. HENRY JUNIUS, an American scholar and author, son of the preceding, born on the Pacolet river, Union district, S. C., Nov. 4, 1797, drowned off the coast of North Carolina, Oct. 13, 1837. He was graduated at the South Carolina college in 1812, made a brief visit to Europe, and on his return in 1818 was admitted to the bar. He became law partner with D. J. Maccord, with whom he edited two volumes of reports covering the cases decided by the constitutional court in 1818, '19, and '20. His health failing, he sailed again to Europe in 1821, married a European lady, and during his absence was elected to the chair of criticism, logic, and the philosophy of language in the South Carolina college. He remained a professor for 13 years in that institution, at the same time being a contributor to the "Southern Review." He made a collection of his "Novelettes of a Traveller, or Odds and Ends from the Knapsack of Thomas Singularity, Journeyman Printer" (2 vols., New York, 1834), chiefly of a humorous character. A historical romance which he had nearly completed at his death has not been published. In 1837 he visited New York, took passage thence in the steamer Home, and perished in its wreck at sea with his wife. III. Josiah Clark, an American ethnologist, brother of the preceding, born in Columbia, S. C., March 31, 1804. He was graduated at the South Carolina college in 1824, took his degree of M.D. in Philadelphia in 1827, and, after remaining two years longer in that city, in the capacity of demonstrator of anatomy to Dr. Physick, returned to Columbia, and commenced the practice of his profession. In 1835 he went to Europe, and spent that and the next year there in the study of medicine, natural history, and the kindred sciences. Since his return he has practised medicine in Mobile, Ala. Beside contributing many articles on professional and kindred topics to the medical journals of the country, he has published several ethnological works which have attracted great attention in Europe as well as the United States. Among these are "Two Lectures on the Connection between the Biblical and Physical History of Man" (8vo., New York, 1849); "The Physical History of the Jewish Race" (Charleston, 1850); "Types of Mankind" (4to., Philadelphia, 1854); and "Indigenous Races of the Earth" (4to., Philadelphia, 1857). The last two were prepared in connection with Mr. George R. Gliddon. The object of these works is to refute the orthodox theory of the unity of the human race, by showing that the present types of mankind lived around the Mediterranean 3,000 years B. C., and that there is no evidence that, during the last 5,000 years, one type has been changed into another. In 1857 Dr. Nott was called to the chair of anatomy in the university of Louisiana, but resigned it after one winter's service, to resume his profession in Mobile. Recently he has succeeded in establishing a medical college in Mobile, which the legislature of Alabama has endowed with $50,000, and made a branch of the state university. Its first session opened in Nov. 1859.

NOTT, Eliphalet, D.D., LL.D., president of Union college, an American clergyman and educator, born in Ashford, Windham co., Conn., June 25, 1773. He is to a great extent self-educated, having never received a collegiate training. He studied divinity in his native county, and at the age of 21 was sent out as a domestic missionary to the central part of the state of New York. On passing through the old settlement of Cherry Valley, he was requested to take charge of the Presbyterian church at that place. He accepted the call, and in addition to his pastoral duties became the teacher in the academy. Two or three years afterward he was called to the Presbyterian church at Albany, where he at once took a prominent position as a preacher, and was listened to by crowded congregations. Among his most successful pulpit efforts while at Albany was a sermon on the death of Alexander Hamilton. In 1804 he was chosen president of Union college, Schenectady, N. Y., which place he has continued to fill for 56 years; and he is now (1861) the oldest head of a literary institution in the United States, and probably in the world. More than 3,500 students have been graduated during his presidency, and in their number may be found some of the most eminent men in the country. Union college is emphatically of his own formation. He came to it in its poverty and infancy, and has raised it to wealth and reputation. In 1854 the semi-centennial anniversary of his presidency was celebrated, when between 600 and 700 of the men who had been graduated under him came together to do him honor. Dr. Nott has been an earnest advocate of the temperance cause, and published "Lectures on Temperance" (Albany, 1847). Though he has written much, his other publications are confined principally to occasional addresses and "Counsels to Young Men" (18mo., New York). He has given a great deal of attention to the laws of heat, and beside obtaining 30 patents for applications of heat to steam engines, the economical use of fuel, &c., is the inventor of a stove bearing his name which has been very extensively used.

NOTTINGHAM, a parliamentary and municipal borough and market town of England, capital of Nottinghamshire, and a county in itself, situated on the river Leen near its junction with the Trent, and on the Nottingham canal and the midland railway, 108 m. N. N. W. from London; pop. in 1851, 58,529, or including Sneinton and Radford, which have since been incorporated with it, 80,006. The suburban villages dependent upon Nottingham have a population of about 80,000. The town is built on the side of a steep hill, and many of the streets rise in terraces. The older quarters present a picturesque but crowded appearance, and the modern parts of the town are laid out with good taste. There are several pleasure grounds, including an arboretum of 18 acres, and a park of 130 acres belonging to the duke of Newcastle, both of which are open to the public. On the summit of a precipitous rock 188 feet above the surrounding meadows are the ruins of "the castle," a large mansion built by the duke of Newcastle in 1674, on the site of a fortress erected in the time of William the Conqueror, and burned in the reform riots of 1831. Beside about 40 churches and chapels, the principal public buildings are a large convent, the exchange, corn exchange, guildhall, county hall, house of correction, union workhouse, barracks, assembly rooms, theatre, and mechanics' hall. Among the schools and charitable institutions are a free grammar school, Unitarian free school, blue coat, British national, infant, and ragged schools, the people's college (founded in 1846 to afford superior education to the working classes), lunatic and blind asylums, and 5 hospitals. There are several libraries, a government school of design, and a mechanics' institute. The principal manufactures are lace, and cotton and silk hosiery. The lace manufacture owes its importance mainly to the invention of the bobbinet machine in 1809 by John Heathcoat, a Nottingham artisan, and to the subsequent application of the Jacquard loom. In 1857 about 3,600 bobbinet and 800 warp lace machines were in operation, and the annual product of lace was £4,780,000. The value of hosiery made at the same time was £2,100,000. There are several other manufactures of minor importance, and the Nottingham ale is celebrated in popular song. The borough returns 2 members to parliament.—Nottingham is a place of great antiquity, and derives its name from the Saxon Snotingaham, which is descriptive of its position as a retreat in rocks, since there were formerly many caverns in the soft rock on which its castle was built, of which a few remain. During the wars of the barons the castle was attacked and taken by the earl of Derby, and after the deposition of Edward II. it became the residence of Queen Isabella and her paramour the earl of March. Several parliaments were held here. In 1485 Richard III. marched from Nottingham, where he had assembled his forces, to the battle of Bosworth field. In the civil war Charles I. set up his standard in Nottingham in 1642, but the place fell the next year into the hands of the parliament.

NOTTINGHAM, Earl of, lord chancellor. See Finch, Heneage.

NOTTINGHAM, Earl of, lord high admiral. See Howard, Charles.

NOTTINGHAMSHIRE, or Notts, an inland county of England, bounded N. W. by Yorkshire, N. E. and E. by Lincolnshire, S. by Leicestershire, and W. by Derbyshire; area, 822 sq. m.; pop. in 1851, 270,427. The face of the country is generally level, with moderate undulations. The celebrated royal forest of Sherwood, the traditional scene of Robin Hood's exploits, was in this county, lying N. E. of Nottingham, and extending about 21 m. in length by a breadth varying between 7 and 9 m. A portion of this forest is still in existence, forming part of Earl Manvers's park at Thoresby, and is known by the name of Birkland forest. All this tract, with the above and a few other trifling exceptions, has now been enclosed. The geological formation on which the county rests is the new red sandstone; and red marl, and its varieties of sand, gravelly sand, and red and white sandstone, constitute by far the greater part of the soil. Coal pits have been sunk to considerable depths in various places; the seams vary in thickness from 1 to 6 feet; the coal is inferior to that of Newcastle. Gypsum is extensively worked near Newark, and a very good yellowish freestone for building and paving is obtained in various places; marl is also found throughout the county. The climate is healthy and comparatively dry. The principal crops are wheat, barley, oats, turnips, and clover. There are excellent market gardens and some good orchards near the principal towns. The river Trent, which has a course of about 60 m. through Nottinghamshire, is a broad navigable stream bordered by level lands. There are many canals and railways. The chief manufactures, beside malt in great quantities, are paper, iron, ropes, candles, ale, earthenware, lace, and hosiery. The N. and S. divisions of the county (N. and S. Notts) send each 2 members to parliament, and its boroughs 6, making 10 in all.

NOTTOWAY, a S. E. co. of Va., bounded S. by the Nottoway river; area, about 300 sq. m.; pop. in 1850, 8,437, of whom 6,050 were slaves. The productions in 1850 were 216,991 bushels of Indian corn, 2,109,814 lbs. of tobacco, and 10,691 of wool. There were 18 grist mills, 3 tanneries, 13 churches, and 260 pupils attending public schools. The value of real estate in 1856 was $1,905,815, showing an increase of 71 per cent. since 1850. The Richmond and Danville and the Petersburg and Lynchburg railroads intersect the county, the latter passing through the capital, Nottoway Court House.

NOUN. See Language, vol. x. p. 295.

NOUREDDIN (Malek-al-Adel Noor-ed-Deen Mahmoud), a Mohammedan ruler of Syria, born in 1117, died in Damascus, May 15, 1174. He was a younger son of Zenghi, of the Atabek dynasty of Irak and Syria and emir of Aleppo, and succeeded his father in 1145. At the beginning of his reign the Christians were endeavoring to regain possession of the dominion which had been taken from them; and in the prosecution of this enterprise Edessa was assaulted by Joscelin de Courtenay. He was repulsed however by Noureddin, who demolished the walls, and massacred all the inhabitants who had given assistance to the enemy. In 1147 the second crusade, headed by Louis VII. of France and the emperor Conrad III., set out from Europe with the avowed object of recovering this fortress; but the numbers of the vast host which they led were diminished in the march through Asia Minor to Palestine by the sword of the Turks, and its power was weakened by the jealousy of the leaders. The Christians began the siege of Damascus, but finally returned to Europe without having accomplished any thing. No sooner had they departed than Noureddin resumed the offensive, with the determination of crushing out the Christian power in Palestine. Invading the territory of Antioch, he defeated and slew Prince Raymond; and, although routed the following year by Joscelin de Courtenay, he was fortunate enough soon after the battle to capture that military leader. The whole of northern Syria now fell into his hands. In 1154 the inhabitants of Damascus, ruled by an imbecile monarch, and dreading an attack from Baldwin III., king of Jerusalem, who had lately taken Ascalon, sought the protection of Noureddin. He rebuilt and adorned that city, and made it the capital of his dominions, which now extended to the frontiers of Egypt, and enclosed on the land side the Christian possessions in the East. The war still continued, the Moslem arms remaining on the whole triumphant; but in 1159 Noureddin's severe sickness, with a false report of his death, retarded his success. The Greek emperor, Manuel Comnenus, and the Franks of Antioch formed an alliance against him; but the former was bought off, and the latter succeeded only in gaining the fortress of Al-Harem, which was subsequently recaptured. In the progress of the war the emir defeated and took prisoner the famous Reginald de Châtillon, prince of Antioch. Turning his attention to Egypt, where the dissensions of the Moslem leaders afforded him a pretext for interference, and extending his sway in that quarter, he sent an army under Sheerkook to the support of the emir Shawir against his rival Ed-Dargam. Shawir, however, having gained the throne, formed an alliance with the Franks, and compelled the troops of Noureddin to depart from Egypt; but refusing to fulfil his engagement with the Christians, he was compelled, in order to escape their vengeance, to apply again to the Syrian monarch. Hereupon Sheerkook, at the head of a Moslem army, entered Egypt a second time, forced the Franks to retreat, put Shawir to death, and ruled Egypt as the lieutenant of Noureddin, who was dignified with the title of sultan by the caliph of Bagdad, and received from that head of the faithful the direct investiture of Syria and Egypt. He had now attained the height of his power, but the remaining years of his life were disturbed by the ambition of Salah-ed-Deen (Saladin), who had succeeded his uncle Sheerkook as ruler of Egypt. Though professing a nominal obedience to his master, he had made himself independent, and disregarded to a great extent the wishes of his sovereign. Noureddin was on the point of marching into Egypt to reduce his rebellious subject, when he was seized with an attack of quinsy, of which he died. Both Moslem and Christian writers unite in the praise of his character. Among the latter, William of Tyre speaks of him as "a prudent and discreet man, who feared God according to the faith of his people;" and among the former his titles of Malek-al-Adel (the just prince) and Noor-ed-Deen (light of the faith) sufficiently attest his reputation. He was exceedingly liberal to the poor, distributing among them every month 5,000 dinars, and establishing a chamber of justice for their protection, and for the purpose of checking the excesses of the military leaders.

NOVA SCOTIA (New Scotland), a province of British North America, bounded N. W. by the bay of Fundy, the province of New Brunswick, Northumberland strait, and the gulf of St. Lawrence, and on all other sides by the Atlantic ocean. It consists of the peninsula of Nova Scotia, a tract of land 280 m. long and from 50 to 100 m. wide, trending E. N. E., and connected with New Brunswick by an isthmus about 8 m. wide on its E. side, between the bay of Fundy and Northumberland strait; and of the island of Cape Breton, which lies at the E. extremity of the peninsula, and is separated from it by the gut of Canso. (See CAPE BRETON.) The area of Nova Scotia proper is 15,607 sq. m., and of Cape Breton 3,120; total, 18,727 sq. m. Pop. of Nova Scotia in 1851, 248,537; of Cape Breton, 27,580; total, 276,117.—Nova Scotia proper lies between lat. 43° 25′ and 46° N., and long. 61° and 66° 30′ W. It is divided into 14 counties, viz.: Annapolis, Colchester, Cumberland, Digby, Guysborough, Halifax, Hants, King's, Lunenburg, Pictou, Queen's, Shelburne, Sydney, and Yarmouth. The principal cities and towns are Halifax, the capital, Pictou, Windsor, and Annapolis.—The coasts are indented with a great number of excellent bays and harbors, and between Halifax and the gut of Canso alone there are 24 commodious havens, 10 of which will accommodate ships of the line. Chedabucto bay, at the entrance of the gut of Canso; Halifax harbor and Margaret's and Mahon bays, on the S. coast; St. Mary's bay, Annapolis basin, Mines basin, and Chignecto basin, on the bay of Fundy; and Pictou harbor on Northumberland strait, are some of the principal inlets. Cape Canso, at the mouth of the gut of Canso; Cape Sable, the S. E. extremity of the province; and Cape Chignecto, at the end of a peninsula jutting out into the bay of Fundy from the isthmus which connects Nova Scotia with the mainland, and having at either side of it Mines basin and Chignecto bay, are among the most remarkable headlands. The coasts throughout are lined with islands, close to which there is deep water. On the Atlantic coast particularly the rocks and islands form a sort of natural breakwater within which vessels sail in comparative safety, while the sea outside is rough and dangerous. About 85 m. from Nova Scotia, but considered as belonging to it, lies Sable island, 25 m. long and 1¼ m. wide, surrounded by an extensive bank, and consisting of little else than a sandy waste. Being in the track of vessels sailing between the United States and Europe, it is the scene of frequent shipwrecks, and a party of wreckers are maintained on it by the provincial government. The principal rivers of Nova Scotia are the Annapolis and Shubenacadie, flowing into the bay of Fundy; the East, West, and Middle rivers, into the harbor of Pictou on Northumberland strait, all of which are navigable; and the Avon, Havre, Mersey, Medway, Clyde, Shelburne, Tusket, and St. Mary. The Shubenacadie canal, in connection with a chain of lakes, forms an inland water communication from the harbor of Halifax to Cobequid bay. Lakes are numerous, but with the exception of Lake Rossignol, which is 30 m. long, they are all small. The surface is undulating, and though there are no mountains there are several ranges of hills, most of which traverse the country in an E. and W. direction.

The highest point, Ardoise hill or Arthur's Seat, is only 810 feet above the level of the sea. Upon the shore of the Atlantic the land has a general height of 500 feet, and is hilly and rugged, and continues to be so for from 30 to 50 m. inland. The soil varies much in quality and fertility. The valleys are exceedingly rich, and produce large crops of different kinds of grain, potatoes, turnips, and all the fruits and vegetables common to temperate climates. Along the S. shore the soil of the highlands is light and poor, but toward the N. there are extensive tracts of fertile uplands.—The geological formations of Nova Scotia range lengthwise with the peninsula from S. W. to N. E. Along the S. coast the crystalline granitic and quartz rocks prevail, interspersed with belts of clay slates and other metamorphic rocks. In the interior are argillaceous slates which afford quarries of good roofing slates. Still further N. the slaty formations become less metamorphic, and some are recognized by the fossils they contain as belonging to the Hamilton group of the upper silurian; and beyond these, toward St. Mary's bay and the extension of its line up the Annapolis river, are strata of the devonian and carboniferous periods. The latter abut against the metamorphic (gneissoid) range of the Cobequid hills, supposed to be of devonian age; and near the line of contact of these formations, among strata of quartz rock and of olive slates, is found a large bed of rich iron ores, very complex in character, consisting of micaceous specular and ochreous ores, with some magnetic ore, spathic iron, and also carbonate of lime. In one place the bed appears to be 120 feet thick. It is traced several miles in the vicinity of Folly and Great Village rivers, and has been worked at several points. East of Folly river it is found at the workings of the Londonderry mining company from 10 to 18 feet thick, and consists chiefly of micaceous specular ore intermixed with blocks of the ferruginous dolomite known as ankerite. For several miles the ore ranges within 300 to 500 yards of the lowest coal bed. Similar beds of ore are met with along the same range in the devonian slates of Morse river, Nictau, and at the E. extremity of the peninsula in the same group in Pictou. At the latter locality, within 40 m. of the Albion coal mines, the ore is very abundant, yielding 40 per cent. iron. At Morse river the bed is 6 feet thick, partially converted into magnetic ore, but the sheets of it abound in impressions of marine shells, and contain carbonate of lime derived from these organisms. The coal measures are divided into several separate fields by the interposition of lower rocks. In the district of Hants and Colchester they form a long strip S. of the Cobequid hills, and another in the valley of the Musquodoboit river. North of the Cobequid hills is the Cumberland coal field, which unites on the N. W. with that of New Brunswick; and in the N. E. end of the peninsula, uniting with each of the others, is the Pictou coal field. The formation is divided into two groups: the upper, about 3,000 feet thick, consists of grayish and reddish sandstones and shales with beds of conglomerate, and thin beds of limestone and coal; and the lower, about 4,000 feet thick, is composed of dark gray sandstones and shales, with reddish and brown beds of bituminous limestone, of iron ore, and very valuable beds of coal; and still below these is a continuation of sandstones and shales known as the gypsiferous formation, amounting to 6,000 feet in thickness, containing in the upper part reddish and gray sandstones and shales, and below these conglomerates and also thick beds of limestone and gypsum. Marine fossils are found in the lower coal measures and the gypsiferous formation, intermingled with terrestrial organic remains, such as the upper measures contain alone. At the South Joggins on Chignecto bay are remarkably fine exposures of these strata along a range of about 10 m., dipping from 19° to 25°. They were measured by Sir William Logan, and the total thickness was found to be 14,571 feet. No fewer than 76 coal beds were counted among the strata. The most productive coal mines of the province are those of Pictou. (See Coal, vol. v. p. 388.) Quarries of gypsum are extensively worked in the vicinity of Mines basin, and this rock as well as limestone abounds along the belt of country from Minadie to Pugwash. The sandstone strata are quarried in many localities for grindstones, the exports of which from Cumberland in 1851 amounted to 36,712 tons; and the same rocks also afford beautiful building stones of a light brown color, which have lately been introduced to considerable extent into New York and Boston. The quarries of these are at Dorchester at the head of Chignecto bay, and also at the head of Pictou harbor. Along the S. side of the bay of Fundy is a narrow belt of trap rock extending from Brier island to Cape Blomidon, a distance of about 130 m. It forms ranges of rude columns in bold precipices, not unlike the palisades of the Hudson. The rock, however, is more varied in its character, as it is intermixed with the red sandstones and shales; and among the amygdaloids which abound along this coast are found the greatest variety of interesting minerals peculiar to this formation. These are described by Messrs. Jackson and Alger in a paper "On the Mineralogy and Geology of Nova Scotia," published in the "Proceedings of the American Academy of Arts and Sciences" (vol. i., new series, 1833). See also Prof. J. W. Dawson's "Acadian Geology," and Lyell's "Travels in North America."—The climate is remarkably healthy, and its rigor is greatly moderated by the almost insular position of the country and by the Gulf stream, which keeps the ports facing the Atlantic free from ice in winter. The thermometer ranges from 8° below zero to 80° above it; the average of the coldest month at Halifax is 20°, and that of the hottest 70°. Though the spring is backward, vegetation is remarkably rapid. The temperature sometimes varies 50° in 24 hours; but the weather is considered preferable to that of Canada East, as it is milder in winter and not so excessively hot in summer.—About one fifth of the area of Nova Scotia is occupied by lakes, rivers, estuaries, inlets, and arms of the sea. In 1850, 839,322 acres were cultivated, 40,012 of which consisted of alluvial marshes reclaimed from the sea along the bay of Fundy by means of dikes. In 1852 the agricultural produce was as follows: wheat, 297,157 bushels; barley, 196,097; rye, 61,438; oats, 1,384,437; buckwheat, 170,301; Indian corn, 34,475; peas and beans, 21,638; grass seeds, 3,686; potatoes, 1,986,789; turnips, 467,127; other roots, 32,325. In the same year there were produced 287,837 tons of hay, 3,613,890 lbs. of butter, and 652,069 lbs. of cheese. In 1851 there were 28,789 horses, 243,713 horned cattle, 282,180 sheep, and 51,533 swine. Many of the inhabitants find employment in fishing, and some combine the occupations of both fishermen and farmers. Nearly all the species of fish found in the North American seas frequent the shores of Nova Scotia. In 1851 there were 812 vessels of 43,333 tons employed in the fisheries, with crews of 3,681 men, and 5,161 boats with 6,713 men. The number of seines and nets was 30,154. The fish cured amounted to 8,769 tons, beside which there were 1,669 barrels of salmon, 3,536 of shad, 100,047 of mackerel, 53,200 of herring, 5,343 of alewives, and 15,409 of smoked herrings; the whole valued at £217,270. Fish oil to the extent of 189,250 gallons, valued at £17,754, was also produced. The wild animals and birds are the same as those generally found in other parts of North America, but, with the exception of some of the smaller species, their numbers have been greatly reduced.—The manufactures are not numerous. In 1850 there were 1,153 saw mills, 386 grist mills, 237 tanneries, 9 founderies, 81 carding and weaving establishments, 17 breweries and distilleries, and 131 other manufactories of different sorts. In the same year the value of the principal articles made was as follows: leather, £52,625; boots and shoes, £73,654; iron, £8,121; soap, £28,277; and candles, £21,210. There were 114,992 chaldrons of coal and 79,795 tons of gypsum raised, 28,603 casks of lime burned, and 2,845,400 bricks and 110,441 lbs. of maple sugar made. Ship building is an important branch of industry in Nova Scotia. In 1854 there were built 244 vessels, measuring 52,814 tons. The exports consist principally of fish, timber, beef, pork, grindstones, gypsum, lime, and coal; and the value of the whole in 1854 was £1,247,668. The value of imports in the same year amounted to £1,791,082. The entrances in 1851 were 3,402 vessels, tonnage 340,039, and the clearances 3,247 vessels, tonnage 338,038. A considerable trade is carried on between the United States and Nova Scotia in coal, fish, tobacco, and various manufactured goods.—The inhabitants are mostly of English, Scotch, and Irish descent. The western counties are principally occupied by the descendants of loyalist emigrants from the United States. The Irish are generally settled in the capital, and the Scotch in the eastern counties. There are some settlements composed of the descendants of French colonists; and in the county of Lunenburg there is a race sprung from some German and Swiss Protestants who emigrated from Europe in 1753. The Indians number only about 1,000.—The province contains several colleges, but the attempts made to form a university by uniting some of them have hitherto been unsuccessful. In 1851 there were 1,096 schools, attended by 31,2[illegible] scholars. In 1854 the public expenditures for education amounted to £13,401. The militia force of the colony is composed of 26,248 men, divided into 26 regiments, beside which there are generally 2 or 3 regular British regiments quartered in the principal towns. The Presbyterians, Episcopalians, Roman Catholics, and Baptists are the most numerous religious denominations. The church of England is established by law, and the amount expended for ecclesiastical purposes in 1854 was £3,687. Nova Scotia was created a diocese in 1787. The bishop and archdeacon are supported by the government of Great Britain, and 50 clergymen under them are paid by the society for the propagation of the gospel. There are two Roman Catholic bishops within the province, those of Cape Breton and Nova Scotia. In 1851 there were 567 churches belonging to all denominations in the colony.—The executive officer of Nova Scotia is styled lieutenant-governor. He is assisted by a council of 6 members. The legislature consists of a council of 19 appointed by the governor subject to the approval of the crown, and a house of assembly elected by the people; and the colonial revenue is entirely under their control. The common and statute laws of England, altered slightly in some cases to suit local requirements, are in force in Nova Scotia. The revenue of the colony, principally raised by duties on imported goods, amounted in 1854 to £166,501, and the expenditures for the same year to £169,159. The expenditures of the British government on account of Nova Scotia amounted in 1857 to £154,605.—Nova Scotia is said to have been discovered by the Cabots in 1497; but the first attempt to colonize it was made by De Monts and some other Frenchmen, together with a few Jesuits, in 1604. They called the country Acadia, and for 8 years made efforts to form settlements at Port Royal, St. Croix, and some other places, but they were at length expelled by the colonists of Virginia, who claimed Nova Scotia by right of original discovery. In 1621 Sir William Alexander obtained a grant of the peninsula from James I., and in the patent it was called Nova Scotia. Alexander's intention was to colonize the country upon an extensive scale; but when the colonists arrived, in 1623, they found the localities where they intended to form settlements already occupied by foreign adventurers. They did not consider the attempt to establish themselves prudent, and therefore returned to their native country. In the reign of Charles I. the Nova Scotia baronets were created. They were not to exceed 150 in number, and were in fact a kind of joint stock company for colonizing the country, each of whom was to receive an allotment of land in proportion to the aid furnished. The French obtained a footing in Nova Scotia a second time, and were not subdued till Cromwell sent a strong force against them in 1654. England ceded the country to France by the treaty of Breda in 1667; but the English continued from time to time to ravage the French settlements, and in 1713 Nova Scotia was restored to them. For some years it was much neglected; but in 1749 efforts were made to colonize it by emigrants sent out at the expense of the British government. Some 4,000 settlers and their families reached the colony in this way, and founded the town of Halifax. The French, who were still numerous, caused considerable annoyance and loss to the English by joining the Indians in making war upon them. They were at length either expelled or subdued, and Louisburg, their chief stronghold on the island of Cape Breton, captured. A constitution was granted to Nova Scotia in 1758; and by the treaty of Paris (Feb. 1763) France renounced all future claim upon any of her former possessions in North America. New Brunswick and Cape Breton were separated from Nova Scotia in 1784, but the latter was reannexed in 1819.

NOVA ZEMBLA (Russ. *Novaya Zemlia*, new land), several islands situated in the Arctic ocean, which belong to Russia and form a dependency of the government of Archangel, between lat. 70° 30′ and 76° 30′ N., and long. 51° 30′ and 77° E. Nova Zembla is separated from the island of Vaigatz, which lies close to the mainland, by the strait of Kara, and from the continents of Europe and Asia by the sea of Kara. The southernmost island of the chain is separated from the others by Matthews's strait, and further N. there is another strait called Cross bay, which has several arms and forms numerous islands. The term Nova Zembla belongs properly to the S. island alone, while the one in the centre is called Matthews's land, to the N. of which are situated Lütke's and Barentz lands, supposed to form one island. The mountains upon the W. coast have a general height of about 2,000 feet above the sea, the greatest elevation being 3,475 feet. The geological formation is mostly clay slate and gray limestone. The soil is barren, the only vegetation being mosses and lichens, and in some places a few stunted shrubs. The mean summer temperature at the S. extremity is 35.51°, and that of winter 3.21°. The islands have no permanent inhabitants, but are visited by fishermen and hunters from the mainland. Fish, whales, and walruses are abundant on the coasts; and reindeer, arctic bears, and foxes are numerous on the islands. Nova Zembla has been frequented by Russian hunters for many centuries, and of late years several exploring expeditions have been sent thither by the czar.

NOVALIS. See HARDENBERG, FRIEDRICH VON.

NOVARA, a province of Sardinia, bounded N. by the Lepontian Alps and Switzerland, E. by the Ticino and the Lago Maggiore, which separate it from Lombardy, S. by the Po, which separates it from the province of Alessandria, and W. by the provinces of Torino and Aosta. It comprises 6 arrondissements, which, with their area and population, are as follows:

Arrondissements.	Area in sq. m.	Pop. in 1858.
Novara	550	190,659
Biella	878	124,540
Ossola	584	88,743
Pallanza	294	61,110
Valsesia	814	82,215
Vercelli	509	181,195
Total	2,629	578,892

The principal part of this division of Sardinia belonged to the former duchy of Milan, and is covered by the main ridge of the Alps, which encloses the valley of the Tosa, into which numerous lateral valleys open, each adding its tributary stream to the Tosa, which finally discharges its waters into the Lago Maggiore.—The arrondissement of Novara, situated between the rivers Sesia and Ticino, is level in its central and southern portions, which form part of the great plain of the Po, but hilly in the north. The soil is noted for its fertility. The principal products are grain, rice, hemp, and silk.—NOVARA, the capital of the province, is situated 10 m. from the left bank of the Ticino, on the high road from Milan to Turin, and about 60 m. W. by railway from the latter city; pop. 26,963. It is surrounded with walls and bastions. Parts of the old fortifications are dismantled, and afford pleasant walks with fine views of Monte Rosa and other spurs of the Alps. The cathedral of Novara is an early Lombard building, celebrated for its splendid high altar, for frescoes by Luini and some sculptures by Thorwaldsen, and for its archives, rich in antiquities of the lower empire and the middle ages, and above all for its music. The church of San Pietro al Rosario is noted for the sentence passed there in 1307 on the priest Dolcino, referred to in Dante's *Inferno*, who was condemned for preaching Manichæism and communistic principles, and was burned alive at Vercelli together with his mistress Margaret, a beautiful nun whom he had taken from her convent. Novara is famous for the battle fought there, March 23, 1849, between the Sardinians under Gen. Chrzanowski and the Austrians under Radetzky. The Sardinian army was completely routed, which led to the abdication of Charles Albert in favor of his son Victor Emanuel, and, among other humiliating conditions of peace, to the renunciation on the part of Sardinia of all claims to the sovereignty of Lombardy.

NOVATIAN, the founder of a schismatical sect in the Christian church in the 3d century. He was a presbyter of Rome, and by his learning, eloquence, and theological writings had won a high reputation. He held that persons who had committed the more grievous sins, and especially those who had denied their faith during the Decian persecution, ought not to be received again into the church. One of the foremost defenders of the contrary opinion was the priest Cornelius, who in 250 was proposed to succeed Fabian in the see of Rome. Novatian, unable to prevent his election, withdrew from communion with him, was excommunicated by a council held at Rome in 251, and was almost immediately afterward set up as a rival bishop by his own party. His principal coadjutor was Novatus, a presbyter of Carthage, who had already become notorious by his violent opposition to Cyprian, the bishop of that see. Respecting the fundamental doctrines of the church there was no disagreement between the Novatians and other Christians. "Their peculiarity was," says Mosheim, "that they would not receive into the church persons who after being baptized fell into the greater sins. They did not, however, exclude them from all hopes of eternal salvation. They considered the Christian church therefore as a society of innocent persons, who from their entering into it had stained themselves with no grievous sin; and hence it followed that in their eyes all associations of Christians which opened the door for the return of gross offenders were undeserving of the name of true churches of Christ. Hence they assumed the name of *cathari*, or the pure, and moreover rebaptized those who came over to them from the Catholics." The sect lasted until about the 5th century.

NOVATION, a law term introduced recently into use by English and American lawyers, from the Roman civil law. It may be defined as the creation of a new debt or contract in substitution for an old one. It differs from a mere renewal, such as takes place when A renews a credit he has given B, or receives a new debt or obligation from B in payment of an old one. To a novation there are three parties. It takes place when A owes B, and C owes A, and A transfers to B in payment of his debt C's debt to him, A. The effect of this is, that A is no longer the debtor of B nor the creditor of C; and B is no longer the creditor of A, but has become the creditor of C; and C is no longer the debtor of A, but has become the debtor of B. In the civil law, the new contract of C to pay B, and the discharge of A's debt to B by the transfer of A's claim on C, would be regarded as different forms of novation. By our law, however, it is one thing, and the whole transaction forms one novation. It is a universal principle in the law of England and of this country, that a promise can be enforced at law only when it is founded upon a consideration. This rule is applied to the case of novation; the effect of it is, that the original liabilities must be extinguished and discharged by the novation, and their discharge is then a sufficient consideration for the new liabilities. Thus, C becomes the debtor of B by the above described novation; and when B claims the debt of C, the consideration on which the claim can be upheld is the fact that C's debt to A was discharged. So if B claims the debt from A, and A interposes his agreement to release him, that agreement is valid only because B has received C's debt to A by way of consideration for his release of A. Thus all the parts of this transaction are mutually connected and dependent. Hence, an order by a creditor to his debtor, directing him to pay the debt to some one to whom the creditor is indebted, operates as the substitution of a new debt for an old only when the order is accepted, and when the original creditor of him who drew the order has agreed to receive the accepted order in payment of his claim. This transaction may be oral only, none of the promises being in writing, because C, the original creditor of A, does not undertake to pay A's debt to B, inasmuch as A's debt is entirely discharged by the novation; but C contracts a new debt to B. This therefore does not come under the provision of the statute of frauds, requiring that the promise to pay the debt of another should be in writing. Hence also, if, after the transaction is complete, C wholly fails to pay B, B's claim against A does not revive, for the reason that A's debt to B was wholly discharged; and this is reasonable, because C's debt to A was wholly discharged, and therefore A would have no claim over on C, if he, A, were obliged to pay his original debt to B.

NOVEL (It. *novella*), a prose fiction, a narrative of a series of fictitious events, connected by a plot, and involving descriptions of scenes and portraitures of character. Its contents, being products of the imagination, are poetical; its form is narrative. Its excellence, like that of an epic or drama, lies in the apprehension and truthful exhibition of the course of human things. As usually regarded, it is the latest stadium of the epic, heir to its dignities and subject to its æsthetic code, and may bear the title of the prose epic of contemporary life. Unlike that, however, it illustrates the transient features rather than the fundamental characteristics of an age, private and local more than historical events, and the phases of society rather than the genius of a religion or civilization. Goethe thus distinguishes the novel from the drama: "In the novel, sentiments and events are chiefly to be represented; in the drama, character and actions. The hero of the novel must be passive, at least not in a high degree active; but the dramatic hero must act; every thing resists him, and he overcomes the hindrances or succumbs." The mediæval romances of chivalry abound in preternatural marvels; most of the earlier novels sought to escape in some measure from the ordinary limits of actual life by adopting for their themes travels, duels, elopements, adventures with banditti, or events of past history; but the novel now in vogue is mainly occupied with depicting and analyzing familiar social phenomena. A philosopher of the last century conceived that whenever the economy of municipal arrangements should be so perfected as to prevent all contraband trading and highway robbery, and so vigilantly detective as to sketch not only the physiognomy but also the biography of every traveller on his passport, romance writing would become obsolete from the absence of the necessary materials. Yet novels are now produced in unprecedented numbers, and without dependence on such elements for their success. The essential requisite, to which all other qualities are incidental, is that they be interesting as stories, since their aim is to amuse, or at most to instruct by amusing. They have no strict artistic form, being in turn narrative, descriptive, didactic, and lyrical; may be designed to illustrate any idea, phase, or tendency of modern life; and may introduce and discuss the problems of morals, religion, philosophy, politics, history, art, literature, and science.—Romances have existed from immemorial antiquity among the principal nations of the East. The Chinese have in their oldest literature parables, marvellous fictitious narratives, and epopees; and for many centuries they have had novels of familiar and social life comparable to those of Europe. They only among the Asiatic nations have delineated in their novels the phenomena of common and domestic life, recounting the conversations, cares, and habits of the household, without intermingling unreal marvels. The play of the passions, the conflicts of interest, the constraint of moral habits, and the analysis of sentiments are the usual themes of both the Chinese novel and drama. By their names as well as characters the heroes might pass for ordinary inhabitants of Canton or Nankin. They abound in detailed descriptions, are remarkable for the beauty of their images and epithets, and are among the best sources of information concerning the private life of the people. Among their classic romances are the "Four Great Marvels' Books," and the "Stories of Pirates on the Coast of Kiang-nan." The romance of the Hindoos is perhaps of equal antiquity, but consists chiefly of fantastic and marvellous narratives. The scenes are in abysses of the sea, on perilous mountain heights, or in vague imaginary spaces. There are princes contending with giants, princesses stolen away by genii, metamorphoses, and magical talismans. Their traditions and even their histories are disfigured by their love of the marvellous, and abound in extravagant fictions. Many of their parables and fables are designed to convey philosophical and religious doctrine. The character of Hindoo fiction has made some scholars suppose that the Persian and Arabian tales were originally derived from India. During the present century several Chinese and Indian novels have been translated into European languages. The Arabian tales of the "Thousand and One Nights" are examples of romantic fiction, highly esteemed in Europe, the recital of which is still more fascinating and general among the people of the East than is the perusal of printed novels among the western public. Excepting Xenophon, whose *Cyropædia* resembles a historical romance, the principal Greek writers of prose fiction were Heliodorus, Achilles Tatius, and Longus, all of whom lived after the 3d Christian century. The story of the loves of Theagenes and Chariclea by Heliodorus, a Christian bishop in Thessaly, was written in a pure and elegant style, and became the model of subsequent Greek romances. Achilles Tatius also recounted the adventures of two lovers, Leucippe and Clitophon. The "Daphnis and Chloe" of Longus is a pastoral romance, containing fine descriptions of scenery on the island of Lesbos. The Milesian fables and the romance attributed to Diogenes Antonius have not been preserved. The romance rapidly degenerated, and its later and worst specimens in Greek were the love stories of "Chariton and Aphrodisias," of "Chaireas and Callirrhoe," of "Anthia and Abrocomas" by Xenophon of Ephesus, and of "Hysminias and Hysmine" by Eustathius. Prose fiction had appeared in Latin in the 2d century in the *Satyricon* of Petronius and the *Metamorphoseon*, or "Golden Ass," of Apuleius, which are its only noteworthy examples. Most of these classical romances relate the adventures of lovers, carried away by pirates or otherwise separated, witnessing rites of magic and religion, secret orgies, and infamous revelries in the cities on the Mediterranean coasts, and at last reunited by extraordinary coincidences. They were however neither so numerous nor so highly reputed as to form an important part of the literature. In the 8th century appeared in Greek the ecclesiastical romance of "Barlaam and Josaphat," by St. John of Damascus, perhaps translated from the Syriac.—The first mediæval romances were metrical. Whether their materials and spirit were borrowed from Scandinavia and northern Germany, especially through the Normans, or from the East through the Spanish Moors and crusaders, or whether they were relics and products of the ancient Celtic genius, are questions not yet determined. But it is certain that they were cultivated by the troubadours of Provence and the trouvères of Normandy from the 11th century. Narrative poetry soon abounded throughout feudal Europe. The wandering minstrels, under divers names, invented, translated, and amplified stories in order to satisfy the demand of the households alike of lords and peasants, rehearsing known facts and genealogies, transforming chronicles and legends into romances of chivalry, reproducing from classic history Alexander as a knight errant and Virgil as a powerful magician, adapting Byzantine tales, and devising facetious and scandalous narratives of real life. The romances of chivalry introduced knights whose enterprise, virtues, martial achievements, and sentiments of honor and delicacy were carried to an extravagant and fabulous perfection, who became the exemplars of ideal knight errantry in the 14th and 15th centuries. The transformation of the metrical into prose romances was in part owing to the invention of printing, the advantage of metre for purposes of recital being thus superseded, and in part to the natural evolution of prose forms out of metrical beginnings, as had taken place in the history of classical literature. Prose fictions, however, celebrated Arthur, Charlemagne, and the other heroes of chivalry, and were as tedious and artless as their predecessors, though they were composed with greater regard to probability, and began to picture manners instead of being mere rhapsodies of feats of battle. In the prose narratives of "Lancelot of the Lake" and of "Pierceforest" are found minute and truthful accounts of tournaments, feasts, and other chivalric displays. The lord de la Noue (1587) thus mentions the taste for these romances: "The ancient fables whose relikes doe yet remain, namely, 'Lancelot of the Lake,' 'Pierceforest,' 'Tristram,' 'Giron the Courteous,' and such others, doe beare witness of this olde vanitie; herewith were men fed for the space of 500 yeeres, untill our language growing more polished, and our mindes more ticklish, they were driven to invent some nouelties wherewith to delight us. Thus came y^e bookes of Amadis into light among us in this last age. But to say y^e truth, Spaine bred them, and France new clothed them in gay garments." Notwithstanding the opposition made to them, the romances of chivalry did not sink into disrepute until the customs of chivalry became obsolete and were thrown into ridicule and contempt by Cervantes. Scandinavia abounded in legendary romances, both in prose and verse, on national subjects, as the *Omeyinga Saga*, the *Heimskringla*, the *Eyrbyggia Saga*, and the more imaginary legends of the *Nibelungen* and the *Volsungen*. They have a bold, vigorous, and gloomy character peculiar to themselves. At a later period the themes of French and English romance, as Sir Tristram, Sir Percival, and Sir Yevain, were borrowed and modified by the North. Germany also had a peculiar cycle of heroes derived from her own traditional history as heir of the Roman empire, such as Theodoric, king of the Goths (Dietrick of Bern), celebrated by the minnesingers, Attila (Etzel), king of the Huns, and Günther, king of Burgundy. Many Teutonic heroes also are celebrated in the *Heldenbuch*. The German romances are of a more fierce and unrefined character than the French, from which they also differ in freely employing the preternatural and magical arts of the subterranean Duergar or dwarfs. The Gothic romance was little cultivated by the Italians. They adopted from the French the tales of Charlemagne and his paladins, which, however, attracted little attention till Boiardo, Berni, Pulci, and Ariosto made them the basis of poems that were diffuse and rambling in style, yet far superior in regularity and beauty of diction to the earlier romances. These romances had been known for two centuries in France before they were introduced into Italy. Of the Spanish group "Amadis de Gaul" is the head and type. The story of the Holy Grail is essentially religious; that of Charlemagne is essentially military; and both relate to historical events. But the "Amadis," says Ticknor, "is of imagination all compact." Its chronology and geography are alike unsettled and uncertain; it has no purpose except to illustrate the virtues of a perfect knight; and its variety in style and topics is superior to that of other similar works. It is by general consent the best of all the old romances of chivalry. The story culminates in the marriage of Amadis with Oriana, the valor of the hero and the constancy of the heroine triumphing over the thousand obstacles interposed by rivals, giants, sorcerers, and other hostile powers. "Amadis" was succeeded by "Palmerin of England," and each was the parent of a long series, for which an unexampled passion prevailed in Spain during the 16th century. The "Don Quixote" is at once a proof of their vast popularity and a monument of their overthrow. This class attained its highest perfection in France, and the originals of the majority of romances were in French, which was then the court language of England. The legends concerning Arthur and his circle of knights were formed by the Norman minstrels from Breton lays, and from the origin of the romances they rivalled those of Charlemagne in popularity both in France and England. There are few original compositions in old English metrical romance. The *Morte d'Arthur*, compiled by Sir Thomas Malory, is the finest relic in prose (1485). This body of Arthurian legend has served as a magazine of subjects and suggestions to some of the greatest English poets from Spenser to Tennyson. —The *Decamerone* of Boccaccio consists of short stories (*novelle*), which follow the mediæval *fabliaux*, or facetious tales of real life, instead of the longer romantic narratives. They are novels of gallantry, collected from various sources, and invested in a charming style; and they present a peculiar form of finished prose fiction, which was continued by Sacchetti, Cintio, Grazzina, Firenzuola, Bandello, and others. In the 15th century the romances of chivalry had run their course in France, but the *fabliaux* or novelettes of love intrigue, like those of Boccaccio, remained. These were varied by an original and still almost unique example of the fiction of satiric humor in the works of Rabelais. The pastoral romance introduced into Italy in the *Arcadia* of the Neapolitan Sannazzaro was previously much cultivated by the Portuguese poets, and was naturalized in Spanish prose by Montemayor, whose "Diana" was nearly as much celebrated and imitated as the "Amadis." The "Arcadia" of Sir Philip Sidney blends pastoral with chivalrous manners, is remarkable for its ideality, and indicates the transition to the romances of conventional love and metaphysical gallantry, tedious from their length and insipidity, a prominent example of which is the *Astrée* of D'Urfé (1610). The reigning quest after increased dignity and artifice of style appears in its extreme in the "Euphues" of Lilly. Gomberville, Calprenède, and Mlle. Scudéri continued this species, which was highly esteemed in France through the 17th century, though now nearly forgotten. It combined modern ideas of courage, courtesy, and fidelity with stories of ancient Greeks, Egyptians, Babylonians, and Persians, in prolix works of many volumes each. The earl of Orrery attempted in his "Parthenissa" to naturalize it in England. Its counterpart was produced by the poet Scarron in the *Roman comique*, which detailed a long series of adventures as low as those of *Le grand Cyrus* were elevated. The picaresque novel had been raised into vogue by the *Lazarillo de Tormes* of Mendoza (1575), of which many imitations appeared in the literature of Spain and other countries. Thus early in the 17th century prose fiction in most of its leading types, as the short amusing story of gallantry, the romance of enchantment and heroic chivalry, the pastoral romance, the riotous satire, the picaresque and the philosophical novel, had become an established form of literature in the principal languages of Europe.—The more complete development of the novel in England was nearly contemporary with the decline of the tragic drama. It aimed to perform for a refined and reflecting age the service which had been rendered by the drama to a ruder and more chivalric period. As the wilder passions and impulses of society became more restrained, the narrative style was called into vogue to give an even and detailed development of sentiment and incident. Though incapable of so powerful an effect as tragedy, novels have the advantage of a wider license in the conduct of the plot, of fuller descriptions and more minute characterizations. Contemporary with the comic dramatists, who substituted conventional wit, maxim, and sentiment for passion, Mrs. Behn produced tales which justified the sarcasm of Steele that she "understood the practical part of love better than the speculative;" and her successors and imitators, Mrs. Manley and Mrs. Haywood, indicate a like reaction from the stilted and extravagant character of the older romances to the topics and personages of real life. The only English prose fictions of the time marked by high poetic ideality were Bunyan's allegories of the "Pilgrim's Progress" and the "Holy War." The modern novel began in England with Defoe and Swift. The graphic details of the career of Robinson Crusoe have rarely been excelled in verisimilitude. The work has also the charm of emancipating the reader from the haunts of ordinary society, and introducing him with consummate skill to the reflections and incidents of a struggle for life on a desolate island. The effect of this and the other fictions of Defoe (one of which, the "Memoirs of a Cavalier," was taken by the earl of Chatham for a true history) is caused by the vivid delineation and concatenation of practical details, which give to the adventures the force of realities commanding the interest and sympathy of the observer. The series of Arthurian, Utopian, and Arcadian romances, and the novel of French and Italian gallantry, had thus been succeeded by a work marked by all the severity and apparent probability of history. The satirist of the age was Swift, whose prototype, if he had any, was Rabelais, and whose "Gulliver's Travels" are equally interesting whether read with or without reference to the allegorical and satirical meaning. The novel was improved by its three great masters, Richardson, Fielding, and Smollett, who presented the passion of love according to its action amid the improved manners, the complicated and artificial distinctions introduced by wealth and luxury, the contrast between town and country, and the real aspects and interests of ordinary life. Though the novels of Richardson are of great length, their accumulation of minute lights and shadings, their profound knowledge of human sentiments and passions, and the earnestness with which they enlisted the passions on the side of virtue, made them an immense advance on all their predecessors. "It requires a reader," says Sir Walter Scott, "to be in some degree acquainted with the huge folios of inanity over which our ancestors yawned themselves to sleep, ere he can estimate the delight they must have experienced from this unexpected return to truth and nature." Yet they incurred the criticism of D'Alembert, *La nature est bonne à imiter, mais non pas jusqu'à l'ennui.* Richardson excelled especially in his female characters, his "Clarissa Harlowe" being his noblest tribute to feminine purity. The novels of Fielding indicate a less sentimental tendency, are less marked by delicacy of perception and command of pathos, and more by flow of animal spirits, vivacity of manner, sagacity in grasping and skill in epitomizing characters, and thorough knowledge of the better and worse features of English life. The plot also of his masterpiece, "Tom Jones," is admitted to be of unequalled perfection, the thread of interest being all made to bear upon the catastrophe; and the whole work reveals his versatile, humorous, and adventurous genius. He makes the novel include wit, love, satire, humor, observation, and wisdom. In contrast with Fielding was Smollett, who delineated rather the eccentric than the common features of character, dealing in humorous exaggeration, inventing burlesque personages, incidents, rencontres, and oddities of speech and action. His characters are generally caricatures and his scenes extravagant. His humor is rather farcical than comic, and yet he rarely fails in his aim to excite laughter. His works were in their time perhaps the greatest triumph in the art of literary entertainment. Dr. Johnson maintained that Fielding and Smollett painted chiefly "characters of manners," while Richardson painted "characters of nature." The "Tristram Shandy" of Sterne offers a phase of humor differing from that of either of his contemporaries, and almost unique in English literature. The book has little plot or continuous action, its interest depending on its personages and sentiments, and its humor arising from the quiet and almost unconscious development of secrets of character. It follows the theory that "a plot is good for nothing except to bring in good things," and it abounds in felicities of diction, subtleties of insight, and in tenderness and pathos which are sometimes melodramatic. These four great novelists of the reign of George II. were succeeded by inferior but unequal imitators. Among the best productions were the "Rasselas" of Johnson, the "Vicar of Wakefield" of Goldsmith, the "Castle of Otranto" of Walpole, the "Old English Baron" of Clara Reeve, the "Fool of Quality" of Henry Brooke, the "Man of Feeling" and "Man of the World" of Mackenzie, the "Evelina" and "Cecilia" of Madame d'Arblay, and the oriental romance of "Vathek" by Beckford. These productions were not sufficient to support the dignity of this species of literature, and a mass of worthless productions were issued from the Minerva press and widely distributed by circulating libraries. Charles Lamb describes the heroes as "persons neither of this world nor of any conceivable one; an endless string of activities without purpose, of purposes without a motive." Absurd in plot and characterization, weak in conception and execution, and ridiculous from their sentimentalism, they were nevertheless read with avidity by both sexes in the higher spheres of life. A different tendency, prompted perhaps by the Gothic romance of Walpole, appeared in the fictions of Mrs. Radcliffe, Matthew Gregory Lewis, and some of those of the Misses Porter. Mrs. Radcliffe is the chief of these practitioners in picturesque horrors and vague perils, in adventures by night, in storm and solitude, in ruined castles with wild banditti, while half-heard sounds and glimpses of visions haunt the imagination. A stricter realism was manifested by Miss Edgeworth and Miss Austen, who described domestic life with minuteness, good sense, a clear moral aim, and charming simplicity of style. During the era of the French revolution, a tendency to embody social speculations and aspirations in fiction appeared especially in the works of Bage and Holcroft, and in the "Caleb Williams" of Godwin. Such was the condition of British novel writing when the author of "Waverley" became its unrivalled head. The Minerva press not unequally disputed the field of popularity and success with the best productions of his immediate predecessors. Scott may be said to have created the historic romance as a new department of English literature. His retrospective cast of mind, genial sympathies, historic sagacity, and creative imagination enabled him to give a vivid and truthful reproduction to past characters, manners, thoughts, and passions. He raised a higher standard of novel writing than had been before known, and substituted for the vapid sentimentalism and inane extravagance which had been in fashion, good sense, genuine humane feeling, power and beauty of description, and life-like impersonations both of manly and womanly character in all ranks from the throne to the cottage. Notwithstanding his preëminent success, it is alleged by Ruskin and Bunsen that he did not truly understand the feudal and chivalrous times which he represents in some of his novels, and that his vivid scheme of mediævalism and feudalism was essentially false. Since Scott the British novelists are the most numerous class in the list of authors. In the year 1829, when the Waverley series was at the height of its popularity, the British museum added but 26 novels in 76 volumes to its library; in 1830, it added 101 novels in 205 vols.; in 1850, 98 novels in 210 vols.; in 1856, 88 novels in 201 vols. Thus from the time of Scott's death, the yield of nearly 100 novels every year, or 2 every week, appears to have continued constant. An average calculation from these data indicates that the British islands have produced about 4,500 novels in about 10,000 vols. since the publication of "Waverley;" and this estimate is confirmed by the London book catalogue, in which the novels published in Great Britain from 1816 to 1851 inclusive amount to 3,300 separate entries. Mr. Masson makes the following classification of this mass of literature, exclusive of Scott's works: 1, the novel of Scottish life and manners, represented by Galt, Mrs. Johnstone, Miss Ferrier, Hogg, Allan Cunningham, Lockhart, Wilson, Sir Thomas Dick Lauder, Picken, and Moir; 2, the novel of Irish life and manners, initiated by Miss Edgeworth, and developed by Lady Morgan, Banim, Crofton Croker, Griffin, Carleton, Lover, Lever, and Mrs. S. C. Hall; 3, the novel of English life and manners, representatives of which are Lady Caroline Lamb, Peacock, Theodore Hook, Plumer Ward, Disraeli, Bulwer Lytton, Mrs. Gore, Mrs. Trollope, Lady Blessington, Miss Martineau, Warren, Douglas Jerrold, Mrs. Crowe, Miss Jewsbury, Lewes, Shirley Brooks, Mrs. Marsh, Miss Mulock, the Brontë sisters, Mrs. Gaskell, Kingsley, Dickens, and Thackeray; 4, the fashionable novel, represented by several of those in the preceding list; 5, the illustrious criminal novel, as Bulwer Lytton's "Paul Clifford" and Ainsworth's "Jack Sheppard;" 6, the traveller's novel, as several of those of Bulwer Lytton, Mrs. Gore, and Mrs. Trollope; 7, the novel of American manners and society, of which Mrs. Trollope, Marryat, Dickens, and Thackeray have given specimens; 8, the oriental novel, as the Persian and Indian fictions of Morier and Fraser; 9, the military novel, represented in the stories of Gleig, Maxwell, and Lever; 10, the naval novel, as those of Marryat, Chamier, Hannay, and Cupples; 11, the novel of supernatural phantasy, as Mrs. Shelley's "Frankenstein," Bulwer Lytton's "Zanoni," and some of Douglas Jerrold's tales and of Dickens's Christmas stories; 12, the art and culture novel, the highest attainments in which have been made by Bulwer Lytton; 13, the historical novel, represented by James, Ainsworth, Horace Smith, Bulwer Lytton, Hope, Lockhart, and Kingsley. This classification, however, leaves strangely out of account the religious novel, perhaps at the present day the most widely circulated of all, of which Mrs. Sherwood, Hannah More, Miss Sewell, Miss Yonge, and Miss Warner have produced the most remarkable specimens. Sir Bulwer Lytton has made a simpler classification, not according to the matter but to the style of treatment, into the three kinds of familiar, picturesque, and intellectual novels. Many novels have been written with an avowed didactic aim, to inculcate or satirize political and ecclesiastical movements, and nearly every question or doctrine publicly agitated has one or more romances written to support or assail it. Among recent fictions, "Adam Bede" and "The Mill on the Floss," by Miss Evans, are remarkable for their realistic tendency.—In American literature, novels appeared later than histories, poems, and works of travel and didactic discussion. Even satire had flourished long in verse, before it assumed the form of prose burlesque narrative. It was not till after the revolution, and till nearly the time of Miss Edgeworth and Sir Walter Scott, that the earliest attempts were made in prose fiction. The first noteworthy American work in this style was "The Foresters, an American Tale," by Jeremy Belknap, first published in successive numbers of the "Columbian Magazine" in 1792. The foresters were personifications of the leading American states and interests, with names that could readily be interpreted, and the narrative embodied much of the history of the revolution and of the formation of the confederation. The poet Bryant describes it as "a work which sought to embellish our history with the charms of wit and humor." John Witherspoon's "History of a Corporation of Servants, discovered a few years ago in the Interior Parts of South America," is a satirical romance, treating under a disguise the ecclesiastical history of Great Britain. The next novel was "Modern Chivalry, or the Adventures of Captain Farrago, and Teague O'Regan, his Servant," by Hugh Henry Brackenridge (1st vol., Pittsburg, 1796; 2d vol., 1806). It is modelled after "Don Quixote," gives proof both of scholastic reading and rough adventures in the West, and is a curious delineation of the social and political humors of the time. The "Algerine Captive, or the Life and Adventures of Doctor Updike Underhill, Six Years a Prisoner among the Algerines," by Royal Tyler (Walpole, 1797), is a medley of narrative, criticism, and statements of opinion on topics of American society, the slave trade, Algerine grievances, and Mohammedanism. It was mistaken by an English critic for a genuine history. Mason L. Weems wrote several short tales of horror in illustration and denunciation of the crimes prevalent in the wild regions of the South. Soon afterward appeared "Female Quixotism, exhibited in the Romantic Opinions and Extravagant Adventures of Dorcasina Sheldon," by Mrs. Tabitha Tenney. The heroine is crazed by reading innumerable sentimental novels of the Rosa Matilda school, and engages in a series of romantic adventures. Charles Brockden Brown is usually styled the first American novelist. He produced about the beginning of the century 6 novels in rapid succession, the best of which, as "Wieland," "Arthur Mervyn," and "Edgar Huntley," were popular in America and reprinted in England. They resemble the romances of Godwin, depend for their interest rather on the development of an idea than the exhibition of character, treat more of adventure in the wilderness than of indoor scenes, and consist almost entirely of narrative uninterrupted by dialogue. Charles Caldwell, one of the editors of the Philadelphia "Portfolio," wrote a Persian story entitled "Bachtiar Nameh, or the Royal Foundling." William Dunlap published in 1836 his novel of "Thirty Years Ago, or the Memoirs of a Water Drinker," recounting events in the life of George Frederic Cooke and other actors contemporary with him in New York. More important than any similar works that had preceded them were the satirical and humorous novels of James K. Paulding, the most successful of which was the "Dutchman's Fireside," treating the character and customs of the Dutch settlers of New York, which passed through 6 editions within a year, was republished in London, and translated into French and Dutch. Among the writings of Washington Irving, his associate in the authorship of "Salmagundi," are numerous short tales, but none of them can properly be called novels. For many years James Fenimore Cooper was esteemed the greatest American novelist. His novels were published at intervals from 1821 to 1850, and describe life both at sea and on land. The best of them are "The Spy," "The Red Rover," "The Pilot," and the Leatherstocking series, in which a single character is reproduced in different ages of his career, associating and warring with the aborigines, retreating before advancing civilization, and leading a savage life with the spirit of a philosopher. They deal with the peculiar characters and scenery of America, with Indians and pioneers, and have therefore been particularly esteemed by Europeans. William Gilmore Simms is, after Cooper, the most voluminous American novelist. His scenes are chiefly in the southern states, and several of his romances are founded on events of Indian and revolutionary history. He excels in vivid and rhetorical description. The novels of Nathaniel Hawthorne display a peculiar and powerful genius. In delicacy and intensity of psychological characterizations, in mastery of the emotions of guilt and insight into the sterner qualities of the New England people, and in richness and precision of style, he has no superior. The most extensively popular work of fiction ever produced in any country was the "Uncle Tom's Cabin" (1852) of Harriet Beecher Stowe, which within a year was translated into all the languages of Europe. How far its success was due to artistic merit, and how far to the interest taken in the subject which it treated, has been a matter of dispute among critics. Among other novels issued between the successes of Paulding and Mrs. Stowe are the powerful tales of Richard H. Dana, contained in the "Idle Man;" the Italian romance of "Monaldi," by Allston; graphic stories of western life and adventure by Flint, Hall, and Mrs. Kirkland; "Horseshoe Robinson," "Swallow Barn," and "Rob of the Bowl," delineations of western and southern scenery and history, by J. P. Kennedy; Dr. Bird's Mexican romances; sketches of New York society, by Hoffman and Cornelius Mathews; William Ware's reproductions of classical and early Christian history in "Zenobia," "Probus," and "Julian;" Mrs. Child's Greek tale of "Philothea;" Judd's "Margaret," the best of his stories of New England life; the earlier and more effective novels of John Neal; the satirical "Peter Schlemihl in America" of George Wood; the "St. Leger" of Richard B. Kimball; the "Lady Alice" and "Alban" of J. V. Huntington; and the domestic tales of Miss C. M. Sedgwick, Maria J. McIntosh, Mrs. L. H. Sigourney, Elizabeth Oakes Smith, and the Misses Warner. They have since been published in unprecedented numbers, in many cases anonymously, often obtaining a large though ephemeral sale. One of the most successful was the "Lamplighter," by Maria Cummings. Other popular novelists are Caroline Chesebro', Mrs. Emma D. E. N. Southworth, Caroline Lee Hentz, Ann S. Stephens, Augusta J. Evans, and the writer under the pseudonyme of Marion Harland. The "Professor's Story," by Oliver Wendell Holmes, is an admirable and peculiar development of this species of literature, in which the plot yields in importance to characterization and philosophic and humorous monologue. "The Bay Path" and "Miss Gilbert's Career," by J. G. Holland, are spirited delineations of New England character and history, while the "Trumps" of G. W. Curtis treats of society in New York.—In France, the reign of pastoral and heroic romances was succeeded by an inundation of oriental tales, *contes des fées*, and *voyages imaginaires*, the principal writers of which were Perrault, the countess d'Aulnoy, Galland (who translated the "Arabian Nights"), Petit de la Croix, and Le Sage. This species of literature was burlesqued in the fairy tales of Count Hamilton. The greatest French novelist of the 18th century was Le Sage, whose *Gil Blas* has perhaps been only less widely popular than "Don Quixote," and has been affirmed to contain more useful knowledge than 20 scientific and moral treatises. "It is a work," says Scott, "which renders the reader pleased with himself and with mankind; where faults are placed before him in the light of follies rather than vices; and where misfortunes are so interwoven with the ludicrous that we laugh in the very act of sympathizing with them. All is rendered diverting, both the crimes and the retribution which follows them." Nearly contemporary with him were Marivaux, one of the first to abandon romantic extravagance, but whose style is intolerably tedious and affected: Prévost, who gave a tragic gloom and grandeur to his novels; Mme. de Tencin, authoress of tender and delicate love stories; the younger Crébillon, who, according to D'Alembert, "draws with a graceful and just pencil the refinement, the shades, and the graces of our vices;" Voltaire, whose novels were designed with gay irony to illustrate and enforce opinions; and Rousseau, whose eloquent romances of *Julie* and *Émile* contain his theories of love, society, education, and religion. The degeneracy of French society appears in the coarser and feebler novels of Louvet, La Clos, and Restif de la Bretonne. A better taste begins with Bernardin de St. Pierre, and was maintained by Châteaubriand, Mme. Cottin, and Mme. de Staël. The principal subsequent French novelists are Frédéric Soulié, Victor Hugo, Balzac, Alexandre Dumas, father and son, George Sand, Alfred de Vigny, Alphonse Karr, Vitet, Mérimée, Paul de Kock, Eugène Sue, and About. A species of physiological romance, forming what has been called *la littérature brutale*, has recently been brought forward by Flaubert and Feydeau. The French romantic literature of the present century, though displaying remarkable ability, abounds in strange conceits, wild suggestions, extravagant scenes, and overwrought sentiments.—In Spain no book of chivalry was written, and few were reprinted, after the appearance of "Don Quixote" in 1605. This work failed of disappearing with the romances which it exploded, in consequence of its deeper idea of the contest between imagination and reality. Its two characters, one a lofty but crazed idealist, the other a sturdy materialist, wander together in quest of adventures. The former transforms windmills into giants, inns into castles, and galley slaves into oppressed gentlemen; while the latter with unconscious humor translates them all into the plain prose of truth. The story combines the extremes of the lofty and the vulgar, the pathetic and the ludicrous, in human life. Prose pastorals were the first to succeed the romances of chivalry, as in other countries, and were themselves supplanted by tales in the *gusto picaresco*, or in the style of rogues. Grave and historical fiction did not appear with noteworthy merits till the reign of Philip II., the first proper historical romance being Hita's "Civil Wars of Granada," which contains admirable delineations of the manners and ceremonies of the time. The tendency of such works, however, to represent the Moors in romantic and attractive colors never met with favor in Spain, and from the reign of Philip IV. historical fictions almost disappeared for more than a century, and never afterward obtained high renown. But short stories or tales were more popular in the 16th and 17th centuries, and seem to have been of native origin and little affected by oriental or Italian influences. Villegas, Timoneda, Figueroa, Barbadillo, and many others cultivated this style with success. The *Cigarrales de Toledo* (1624), by Tellez, was the first of numerous collections of stories recited at or pertaining to social entertainments. Allegorical or satirical tales were common, the best being those of Santos (about 1700). Romantic fiction in Spain was alike remarkable for its early splendor and its early decay. It was at the height of its glory before the age of pastoral romance in other countries; and from the time of its decline it has been of little account, though translations of the best foreign novels are highly esteemed. —Italy has been unsurpassed in the number of her novelists. From Boccaccio to Gozzi (1313–1786) the Italian novels were only short tales of gallantry or comic adventure, with little development of plot, character, or sentiment, written in an affected and pompous style. Bandello, Cintio, and Macchiavelli (*Belphegor*) are almost the only names of special note. Several longer tales were produced near the close of the 18th century, only one of which, the *Ultime lettere di Jacopo Ortis*, by Ugo Foscolo, attained high repute. It is an imitation of Goethe's *Werther*, the author bewailing at once his misfortunes in love and the calamities of his country. The best Italian romance is the *Promessi sposi* of Manzoni, admirable for its simplicity and vivacity. Rosini, Cantu, Grossi, Tommaseo, Belmonte, Azeglio, Guerrazzi, and Bersezio are the principal subsequent novelists. The scenes of many of their productions belong to mediæval Italian history.—German prose fiction had little that was original or peculiar till the latter part of the 18th century. The principal cycle of earlier romances were the numerous imitations of "Robinson Crusoe," of which *Die Insel Felsenberg* was the best. Historical romances, novels of real life, novels marked by particular tendencies respecting art, literature, or society, and especially imaginative and poetical tales, have been common since the revival of this literature about the time of Goethe and Schiller. The romances of Wieland, though diffuse and didactic, were admired for their semi-Greek, semi-Parisian tone. August Lafontaine succeeded in sentimental descriptions of common and domestic life; Wetzel, Müller, Schulz, and Hippel illustrated the comic side of family trials and joys; and Richter endeavored to combine the English humor of Sterne with German sentiment, and is remarkable for his rich and eccentric style. Tieck, Fouqué, Hoffmann, Brentano, Chamisso, Apel, and Arnim were the principal novelists of the romantic school, who availed themselves of mediæval legends and mystical views. Chivalric romances were revived by Cramer, Spiess, Schlenkert, and Veit Weber, who rivalled Mrs. Radcliffe in the enginery of terror. Popular legendary tales (*Volksmärchen*) constitute a special department of German fiction; and while the romantic school treated the traditional groundwork with earnestness and apparent belief, Musäus employed it only for purposes of drollery or of fanciful and grotesque description. The novels of Heinse aim to invest sensuality with the graces of art. The *Wilhelm Meister* of Goethe is the most eminent example of the art and culture novel, with great merits at least for its ingenious speculations on the highest topics of literature and art. Among female novelists Fanny Tarnow, the baroness de la Motte-Fouqué, Johanna Schopenhauer, Henrietta Hanke, the countess Hahn-Hahn, and Caroline Pichler are prominent. The novels of Kruse are at the head of a class of *Kriminal-Geschichten*, the plot consisting in the discovery of guilt by circumstantial evidence. The *Michael Kohlhaas* of Kleist is a remarkable historical romance, and according to Goethe "brings prominently into view a dissonant principle in nature, with which poetry ought not to meddle, with which it cannot reconcile itself, let the handling of the matter be never so exquisite." Other historical romancers were Von Tromlitz, Spindler, König, Mügge, and the Norwegian Steffens. Among contemporary novelists, Auerbach, Gutzkow, and Freytag are preëminent for their delineations of society in its real and living features; the historical romance is best represented by Wilibald Alexis (Wilhelm Häring); and Gottfried and Johanna Kinkel excel in the department of brief and humorous tales.—Among the most important novels in other languages are those in Danish by Hans Christian Andersen, and in Swedish by Fredrika Bremer and Madame Carlen.—See Dunlop, "History of Fiction" (3d ed., London, 1843); Wolff, *Allgemeine Geschichte des Romans* (2d ed., Jena, 1850); and Masson, "British Novelists and their Styles" (London and Boston, 1859).

NOVELLO, Clara Anastasia, Countess Gigliucci, an English singer, born in London, June 10, 1818. She is a daughter of Vincenzo Novello, an English musical composer of Italian descent, born in London in 1781, whose compositions, particularly those of sacred music, enjoy a high reputation. She completed her musical education in Paris, and made her first public appearance at a concert in Windsor in 1833. Mendelssohn-Bartholdy invited her to spend some time at Leipsic, and she also gave performances in Berlin, Vienna, and St. Petersburg; and, after having performed in opera at Padua as Semiramis, and in other Italian cities, she appeared on her return to England in 1843 as prima donna in the Drury Lane theatre, and has since remained a great favorite in English operas and concerts. In 1848 she married Count Gigliucci, and resumed her performances in 1850. From 1854 to 1857 she was attached to La Scala at Milan, and made her last public appearance in London, Nov. 21, 1860, on retiring to private life.

NOVELS (*Novellæ Constitutiones*). See CIVIL LAW, vol. v. p. 275.

NOVEMBER (Lat. *novem*, nine), the 11th month of our year, and the 9th of the Roman when their calendar was first founded. It was one of the 10 months of the year of Romulus, and consisted originally of 30 days, which number was afterward changed to 29, probably by the decemvirs. Julius Cæsar gave it 31, but Augustus restored it to its original number. By the heathen Saxons it was called Blot-monath, because in this month they sacrificed to the gods the cattle that they slew. It corresponds to parts of Marheshvan and Kislev of the Hebrew calendar, and to the end of Brumaire and the greater part of Frimaire of the French revolutionary calendar.

NOVGOROD, a N. W. government of European Russia, bounded by Olonetz, Vologda, Jaroslav, Tver, Pskov, and St. Petersburg, between lat. 57° and 62° N., and long. 30° and 40° E.; area, 46,833 sq. m.; pop. in 1856, 812,454. It is divided into 10 districts, and contains, beside the capital of the same name, the towns of Staraya Russa, Valdai, and Tikhvin. The principal rivers are the Msta, which enters the government from Tver, flows N. W., and falls into Lake Ilmen; the Lovat and Pola, which fall into the same lake; the Volkhov, which flows from that lake into the Ladoga canal; the Sheksna and Mologa, tributaries of the Volga; and the Sias and Busha, which fall into Lake Ladoga. There are 3 large lakes, of which the most extensive are the Bielo Ozero (white lake) in the N., about 25 m. long and 20 m. broad, and Lake Ilmen in the S. W., 26 m. long and 16 m. broad. In the S. W. the Valdai hills enter from the province of Pskov, and stretch N. E. They are a limestone range, nowhere more than 1,000 feet high. The surface of Novgorod is covered with an immense number of granite bowlders, though there is no granite *in situ* within the province, nor in any of those immediately adjoining. The face of the country is in general flat, a considerable portion of it being covered with lakes and marshes. The soil of the N. portion is for the most part swampy and of a poor quality, but in the S. it is good and productive. The climate is cold, and the winter lasts from November to May. There are large forests of pine, fir, birch, alder, and elm. The principal crops are rye, barley, oats, flax, and hemp. The forests afford shelter to large numbers of wild animals; and the lakes and rivers are well stocked with fish, which form a considerable article of export to St. Petersburg and Moscow. Iron, coal, and salt are found; and limestone, sandstone, and gypsum are very abundant. Manufactures and trade are both of little importance. —NOVGOROD, or NOVGOROD-VELIKOI (Great Novgorod), the capital, is situated on the river Volkhov, near the point where it issues from Lake Ilmen, 103 m. S. S. E. from St. Petersburg; pop. about 19,000. It stands on a plain about 450 feet above the level of the sea, and is divided into two parts by the Volkhov, which is crossed by a fine wooden bridge supported on granite pillars. The town is generally ill built, and the portion on the right bank of the river has streets which in many places are overgrown with grass, and are nearly all unpaved. The other portion is surrounded by a rampart of earth, and contains the Kremlin, or citadel, within which is the cathedral of St. Sophia, built after the model of St. Sophia at Constantinople. There are 61 other churches, and several monasteries. The manufactures are not of much importance, and consist of sail cloth, leather, tobacco, candles, and vinegar. There is a trade in flax, corn, and hemp, carried on chiefly with St. Petersburg. Novgorod is one of the most ancient towns in Russia, and was founded in the 5th century by the Slavi, who established here the original foundation of the Russian monarchy, the seat of which was afterward removed to Kiev. In the 12th century Novgorod became an independent republic under a hereditary magistrate of limited power. The territory of this state extended as far as Siberia on the E. and Livonia on the W. It had an extensive trade; one of the earliest factories of the Hanseatic league was established at Novgorod, and its fairs were resorted to by traders from all the neighboring countries. In the 15th century the population was 400,000; but in 1477 its independence and prosperity were destroyed by Ivan Vasilevitch I.

NOVICE, a candidate for admission into a religious order who has not yet taken the vows, but is passing through a period of probation designed to try his vocation. Novices usually wear the dress of the order, with perhaps some distinguishing mark, as in certain of the sisterhoods, in which their veils are white instead of black, and are subject to the rules and the authority of the superiors. They are placed under the direction of an officer of the convent, called the master or mistress of novices, whose duty it is to examine their characters and fitness for the religious state, and to try their strength by exposing them to the most serious obstacles to perseverance which they are likely to encounter in the order. The period of probation, called the novitiate or noviceship, must be, according to the council of Trent, at least a year, and it is often longer.

NOX (Gr. Νύξ), in Greek and Roman mythology, the goddess of night, the daughter of Chaos and sister of Erebus (Darkness), and according to the Hesiodic theogony, one of the very first created beings. By her brother Erebus she became the mother of Æther and Hemera (Day), and is said to have given birth without any husband to Thanatos (Death), Dreams, Momus, the Hesperides, Nemesis, &c. In later poets she is merely the personification of the darkness of night. She is represented as a winged goddess, covered with a dark, star-spangled robe, or sometimes riding in a chariot accompanied by the stars, and holding in her arms the gods of sleep and death as two boys.

NOXUBEE, an E. co. of Miss., bordering on Alabama, and intersected by Noxubee river; area about 700 sq. m.; pop. in 1850, 16,299, including 11,828 slaves. It has a nearly level surface and an excellent soil. The productions in 1850 were 895,718 bushels of Indian corn, 96,034 of sweet potatoes, and 12,555 bales of cotton. There were 10 grist mills, 8 saw mills, 3 tanneries, 23 churches, and 894 pupils attending public schools. The Mobile and Ohio railroad passes through the capital, Macon.

NOYES, GEORGE RAPALL, D.D., an American divine, born in Newburyport, Mass., March 6, 1798. He was graduated at Harvard college in 1818, studied theology at the divinity school in Cambridge, was licensed to preach in 1822, and being appointed tutor in Harvard in 1825, remained in that office two years. He was then ordained pastor of a church at Brookfield, Mass., and afterward became pastor of a church at Petersham, Mass. In 1839 he received from Harvard college the degree of D.D., and in 1840 was chosen Hancock professor of Hebrew and other oriental languages, and Dexter lecturer on biblical literature. His services in this office have been chiefly confined to the divinity school, though for a portion of the time, in connection with other professors, he has officiated as college chaplain and preacher. His published works have been chiefly in the department of Hebrew philology, including new translations of the book of Job (1827), the Psalms, the Prophets (3 vols. 12mo.), and Proverbs, Ecclesiastes, and Canticles (1846). Dr. Noyes has also published several occasional sermons and numerous articles in the "Christian Examiner," has edited a series of theological essays from various authors, and prepared a Hebrew reader.

NUBIA, a name given to the countries on and around the valley of the Nile, between Egypt and Abyssinia on the N. and S., and the Red sea and the great desert and Nigritia on the E. and W.; pop. about 200,000. The word Nubia is very indefinitely used, however, being applied by some geographers to a much less extent of country, and even sometimes restricted to the territory E. of the Nile, while the natives call the small tract between Derr and Dongola alone Nooba, or Wady-el-Nooba. Within the limits above defined, it extends between lat. 11° and 24° N. and long. 28° and 39° E., about 850 m. in length, and rather more than 600 in breadth; it comprehends Nubia proper, or the valley of the Nile, extending from the limits of Egypt to the S. boundary of Dongola; the ancient Meroë, the modern capital of which is Shendy, and the territory of which may be considered as extending along the Nile from Dongola to the junction of the Blue and White rivers; and Sennaar, higher up, to which seem to be annexed Kordofan and Taka. Lower Nubia consists chiefly of deserts, extending on the E. to the Red sea and on the W. almost to the great Sahara, but relieved in the valley of the Nile by mountain ranges of sandstone and granite, which approach close to the banks of the river, leaving only a narrow strip of land along the water's edge. In some places the rocks encroach upon the bed of the river and form rapids, the lowest of which, called the first cataract, occurs near the frontier of Egypt. Upper Nubia is an elevated table land, attaining toward the S. boundary a height of 4,000 feet above the sea. In this district there are several mountain chains, which, instead of running parallel to the river, stretch E. and W., one of them extending to the Red sea, and sending off numerous branches into the Nubian desert. There is also a range of hills along the coast of the Red sea, and among or near them are said to exist gold and silver, though none of the attempts to extract the ore have been successful. The chief geological formations of upper Nubia are granite, quartz, and mica slate. The country is well watered by numerous tributaries of the Nile, and above the second cataract stretches into vast and fertile but neglected plains, which it is conjectured were at some remote period reached by the inundations of the Nile. Artificial means of irrigation are now resorted to, among which is the *sakiyeh* or Persian wheel for raising the water of the river. The W. bank appears to have been anciently the principal seat of prosperity, but the E., being the more easily watered, is now more cultivated.—The climate of Nubia is very hot, but upon the whole not unhealthy. Small pox is the only epidemic of the country, the plague being hardly known. Rain does not fall in the lower district, but in upper Nubia there are plentiful showers from March to May. The principal crops are durra, barley, French beans, lentils, and watermelons. Two and occasionally three harvests are reaped in the year. Tobacco is cultivated everywhere, and is the principal luxury of the people. Animal food is seldom used. An intoxicating liquor is made from dates, and a sort of beer from durra. Though the soil is well adapted for many other kinds of fruit, palms are the only trees cultivated. The trees growing near the desert are mostly acacias, tamarisks, and date and doum palms. Cows, sheep, goats, buffaloes, oxen, and a few camels, are the domestic animals of the Nubians. In the E. mountains gazelles are found. Dongola has a fine breed of horses. Hyænas are sometimes seen on the banks of the Nile, and monkeys in the mountain ranges. Crocodiles and hippopotami are found in the Nile. Fish are taken in nets about the neighborhood of the cataracts. The women weave coarse cotton and woollen cloth, and from the leaves of the date tree they form mats and bowls. These are the only manufactures, and every thing else is imported from Egypt. About 80 tons of dates are annually exported; beside which, grain, ivory, musk, ebony, leeches, coffee, and honey come from the S. and S. E. part of the country. Burckhardt calculated the number of slaves sold annually in the market of Shendy at about 5,000, of whom 1,500 are for the Egyptian and 2,000 for the Arabian market, and the rest are purchased by the Bedouins. A caravan travels twice a year from Mahass to Cairo with slaves.—The inhabitants are a handsome mulatto race, of dark brown complexion, bold, frank, cheerful, and morally much superior to the Egyptians. They live in low huts built of mud or loose stones, roofed with durra straw; the houses of a few of the larger villages are however better built. One of the most remarkable features in Nubia is the extensive monumental ruins that stand along the banks of the Nile, most of which are situated on the W. bank of the river. Some of these temples are of very ancient date, extending back to the times of the Pharaohs. About 15 m. above the first cataract are the remains of a temple dedicated, according to the Greek inscription over the entrance, by Ptolemy Philometer and his queen Cleopatra, to Isis and other deities. Some of the temples further up the river are ornamented by many columns, colossal figures, and statues of from 10 to 16 feet in height; and at one an avenue of 16 sphinxes leads from the bank of the Nile to the temple.—The name Nubia is supposed to have originated in Egypt, where the word *nob* or *nub*, signifying gold, lent an appellation to those countries whence the precious metal was brought. In the early Greek and Roman writers there is occasional mention of Nubia, but no particular information concerning it. The emperor Diocletian gave up to the Nubæ or Nubatæ a strip of land above the first cataract, on condition of their preventing the Ethiopians and Blemmyes from attacking Egypt. When the Moslems invaded Egypt in the 7th century, they found settled here a powerful Christian nation called Noubas, whose capital was at Dongola. According to an Arab writer, they consisted of two distinct races, both of which came originally from Yemen; and even at the present day two languages are spoken, though the inhabitants differ from one another in no other important particular. They remained tributary to their Arab conquerors, though frequently revolting and as often subdued, until the 14th century, when the power of the king of Dongola, who with all his ostensible allegiance to Egypt had been virtually independent, seems to have been broken; the Bedouin Arabs invaded the territory in great numbers, Christianity became extinct, and many petty Mohammedan states, among which were Sukkot, Mahass, Dongola, and Berber, sprang up, each under its own chief. In 1821 Mehemet Ali, the pasha of Egypt, sent an expedition against Nubia, overcame the principal states, and finally extended his conquests as far as the frontiers of Abyssinia. Ever since that period the country has remained in subjection to the Egyptian pashas.

NUDIBRANCHIATES, an order of gasteropod mollusks, whose gills are exposed. (See Mollusks.)

NUECES, a S. co. of Texas, bordering on the gulf of Mexico, and bounded N. by the Nueces river; area estimated at 5,500 sq. m.; pop. in 1858, 1,916, of whom 98 were slaves. Between the mainland and the Isla del Padre, a narrow strip of land extending along the coast, is the Laguna del Madre. Corpus Christi bay is on the N. E. corner, and the county is indented by other bays and lagoons. These waters furnish fish and oysters in abundance. It has an undulating but nearly level surface, and the soil is a rich sandy loam, and very fertile. The county is excellently adapted to the raising of sheep. Capital, Corpus Christi.

NUEVA GUATEMALA. See Guatemala.

NUEVO LEON. See New Leon.

NUISANCE (formerly written *nusance*; law Fr. *nosaunce*, *noysaunce*, from *noier*, modern Fr. *nuire*, to injure; Lat. *nocumentum*, from *noceo*, annoyance, any thing that worketh hurt, inconvenience, or damage). Nuisance cannot be well defined in specific terms. Not only are the rights which it affects themselves rather indefinite, but, including as the offence does both private and public injuries, it is applied as well to those immediate wrongs to individuals which can hardly be distinguished from trespass, as to those remote offences against the public order and welfare in which no one member of the community can show greater damage than any other. More than this, the offence of nuisance is rarely direct and aggressive, but the injury in which it consists is rather the consequential than the immediate effect of the wrong act.—A familiar division of nuisances is that into public or common and private. The former, says Blackstone, are those which affect the public and are an annoyance to the king's subjects, for which reason we must refer them to the class of public wrongs. Private nuisance may be defined as any thing done to the hurt or annoyance of the lands, tenements, or hereditaments of another. as when one projects the eaves of his own building over the roof of that of his neighbor, or stops his ancient lights; or the nuisance may affect incorporeal hereditaments, as when one ploughs up the road in which I have a right of way across another's land. It will be seen that these illustrations of private nuisance approach very nearly to the offence of trespass. Of the first indeed, Blackstone expressly says it is a species of trespass, for *cujus est solum, ejus est usque ad cœlum*, he who possesses the land possesses also that which is above it; and the last is the case of infringement of a right, which, though not corporeal, is yet clearly determined. Yet, however much cases like these may resemble trespass and differ from public nuisance, they cannot be ranked with the former, for they lack some of its technical elements, as, for example, the direct application of force, which is the criterion of trespass; and they may be well enough ranked with the latter, because they have so much in common with it. Nuisance, then, whether private or public, is rather a tortious than a criminal act. It is not committed with force, either actual or implied. The injury of it arises rather from misuse of one's own, than from abuse of or aggression on another's right; and it is therefore indirect or remote, as distinguished from actual invasion of another's property. It would be trespass, that is, a plain infringement of another's right, to enter without his permission, express or implied, upon his land or into his house; but it is less clear that an offence has been committed when one complains that his neighbor has injured him by erecting a building so near him as to darken his windows, or by keeping a swine yard so near as to lessen his comfortable enjoyment of life. The nuisance is by so much less clear than the trespass, as the rights which the complainant sets up in the latter cases are less nicely marked than those tangible ones of corporeal property which are invaded by the trespass. So in respect to public nuisance, the offence consists in an encroachment on common rights of the whole society, which, from their nature, are determined with very various degrees of certainty. If one obstructs the public highway, the case is clear; but it is not quite so evident that a bowling alley is a public nuisance, and it may require a legislative act to show that to keep liquors for sale is an offence of the same character. The public wrong differs, too, in different communities. A knacker, for instance, may legally carry on his offensive trade in an uninhabited tract of country, but he is guilty of a public nuisance if he exercises it in the midst of a town. Indeed, when any one even of one's absolute rights diminishes the general welfare, it becomes misuse of them and nuisance. In respect to public nuisance, it is to be further observed, that as the legislature represents the whole society and is the particular custodian of the public welfare, no act which it authorizes can be declared a public nuisance. This has been so held in respect to railways laid in the streets of cities under legislative charters; and in the case of a railroad, the locomotives on which frightened the horses of passengers along a parallel highway, it was declared to be no nuisance, because the public benefit may be supposed to have been regarded by the legislature as sufficient compensation for the inconvenience. Yet any abuse or excess of the privileges thus granted, intrudes on the domain of public rights and is a nuisance to them. It may be added here, that when public squares or places have been illegally sold by the authorities, and the public enjoyment has been obstructed by the erection of private buildings, the owners of these may be indicted for the maintenance of common nuisances.—A good criterion of nuisance was suggested by the court in a late English case in the following language: "Is the inconvenience one of mere delicacy and fastidiousness, or does it interfere with the ordinary physical comfort of human existence, not merely according to elegant or dainty modes of living, but according to plain, sober, and simple notions?" Public nuisances, says a late accurate commentator upon the criminal law (Bishop), may be defined as all those acts put forth by man, which tend to create evil consequences to the community at large, and are of sufficient magnitude to require the interposition of the courts. They are, then, injuries to that aggregate of rights which constitutes the well-being of society. All acts therefore which imperil the public safety or health, or disturb the public convenience, are indictable as common nuisances. Such acts are the keeping of gunpowder in mills or magazines in a dangerous manner, near the dwellings of citizens or near a public highway, or carrying on offensive trades in populous places; and it is not necessary that this affect the health; it is sufficient, said Lord Mansfield, if it lessen the enjoyment of life. So it is an indictable offence to expose a person infected with a contagious disease in a public street. With regard to offensive trades, it was formerly held to be the rule that if one had been for a long time carried on in a locality remote from habitations, those who afterward came to dwell in the vicinity had no ground to complain of the nuisance. But a late case in Massachusetts holds what seems to be better doctrine, to wit, that no one can have a right to use his own land so as to render that about him in any degree useless. His enjoyment must have reference to the rights of others, and be subordinate to the general laws which have been devised for the common benefit. So it was held in respect to a bathing place in England. When it was urged in defence that it had been, time beyond memory, the resort of bathers, the court said that, the neighborhood having lately become thickly populated, the ancient enjoyment of the beach must cease; for whatever place may become the dwelling of men, there the laws of decency must be observed. All injuries to the highway, as obstructions of it or narrowing it, which render it less commodious to the public, are nuisances at common law. One has been held to be indictable who, by exhibiting effigies in his window, attracted such crowds to look at them as to hinder free passage along the road. As it disturbs the public order, that is a common nuisance which corrupts the morals of the community. Profane cursing and swearing in public is indictable as a nuisance. So are open lewdness, disorderly inns, and bawdy and gaming houses. In New York erections of every kind adapted to sports having no useful end, and notoriously fitted up and continued with a view to make profit for the owner, are declared to be nuisances. Such an establishment is a bowling alley, kept for gain or hire, even though gambling in it were expressly prohibited. But keeping a billiard room without allowing any noise to disturb the neighborhood, and without allowing any bets in the game, is not indictable.—The remedies for nuisances vary with the character of the injury. In the law the remedy is always adjusted to the wrong. For a private wrong there is a private remedy by civil suit, and for a public wrong a public remedy by indictment; but never a private action for a public mischief, nor a public prosecution for a private injury. Compensation for a private nuisance is sought therefore by private action; but in the case of a public nuisance, though each member of the society is in fact wronged, yet no one may have a private suit. Thus if A dig a trench across the highway, the act is a public grievance; but no individual can make the offence a cause of action, for no one can ascertain his particular proportion of the damage; and even if he could, it would be highly inexpedient that the offender should be pursued by the separate suits of all the citizens. But if B fall into the trench and sustain particular damage, this will give him cause of separate action, not founded at all upon the nuisance, for that is matter of public concern, but on the private damage which the public wrong has caused him particularly. In other words, A's tortious act, though immediately a public offence, has yet wrought consequentially the same injury to B which a direct personal trespass would have wrought. For what we may call B's public right of free passage along the highway he has no right of individual action, but must join with the whole body politic in a public prosecution.—It is familiarly known that he whose rights are prejudiced by a private nuisance may abate it, that is, may remove it by destroying, if need be, the cause of nuisance; and as a public nuisance injures equally all the members of the society, it has been laid down that any one of these has the right to and may legally abate it. Thus, says a text writer of authority, if any one whose estate is prejudiced by a private nuisance actually erected, may justify the entering into another's ground and pulling down and destroying such nuisance, it cannot but follow *a fortiori* that any one may lawfully destroy a common nuisance. But it is also the law in respect to private nuisance, that one may abate so much and only so much as is a direct injury or nuisance to him individually; and this will appear reasonable when it is remembered that it is just this direct injury which gives and measures the right of private suit. In private nuisance, then, one may abate as he may have his civil action, in both cases for the special injury. Now in respect to public nuisance we have seen that the law permits no individual citizen to prosecute the public wrong, but limits him to a private action for his private damage. By analogy with the case of private nuisance, it would seem that, in respect to public nuisance, the right of individual action should measure the right of individual abatement; that is to say, that an individual would be privileged to abate a public nuisance, not as such and merely because it existed, but only when, and so far as, it interfered with his individual rights; in short, that he might abate in those cases only in which he might have a separate action. This is the doctrine lately held by the supreme court of Massachusetts in a noted case in which the plaintiff brought an action of tort against defendants for their destruction of certain spirituous liquors. They pleaded in justification that the keeping of such liquors was declared by statute to be a common nuisance, and therefore that any one might abate it. The court said that, though the doctrine has been sometimes stated in terms so broad as to give countenance to the supposition, yet it is not lawful by the common law for every and all persons to abate a public nuisance. This right is generally not intrusted to individuals without process of law, by way of vindicating the public right, but solely for the relief of a party whose right is obstructed by such nuisance.—The remedies at law can at most only abate or afford compensation for existing nuisances, but are ineffectual to restrain or prevent those which are threatened. There is therefore a jurisdiction in equity over nuisance, by process of injunction; but the jurisdiction will be exercised only when the fact of nuisance is clearly made out, and when it is proved that, from the nature of the case, the injury is not susceptible of adequate compensation at law.

NUKAHIVA. See Marquesas.

NULLIPORE, the name of a division of the coralline order of marine plants, belonging to the florideous algæ. These are rigid calcareous sea weeds, composed of closely packed elongated cells, in which carbonate of lime is deposited; their name is derived from their having no visible pores on the surface. They usually have the form of a disk, sometimes of tufts, with crustaceous or foliaceous non-articulated fronds, and vary in hardness from cartilaginous to stony. They incrust rocks or other algæ on the edges of the sea in all latitudes, but most abundantly within the tropics. They have been alternately placed among animals and plants, but are now regarded as without doubt belonging to the latter; reddish or purple when recent, they soon fade to a milk white. *Melobesia* is the type of the nullipores, according to Harvey and Agardh. (See Algæ.) These marine vegetable growths have been instrumental in building up islands, like the Tortugas and the Marquesas, and have furnished the principal materials for some calcareous strata of past geological ages.

NUMA POMPILIUS, the second ante-historical king of Rome. After the death of Romulus there was an interregnum of a year, each of the senators in turn enjoying the royal prerogative. At the end of this time the people became discontented, and demanded the election of a king. But when the senate had given its consent, a dispute arose between the Sabines and Romans, as to which tribe the sovereign should be taken from. At last, it having been agreed that he should be selected by the Romans from among the Sabines, Numa Pompilius, of the town of Cures, was unanimously chosen. His first care was the reformation of the civil institutions. He divided the lands which Romulus had gained by conquest, founded the worship of Terminus, the god of boundaries, and divided the artisans according to their trades into 9 companies. He was considered as the author of the Roman ceremonial law. He regulated the duties of the pontiffs, who had charge of the enforcement of the laws relating to religion, the augurs, the flamens, the vestal virgins, and the Salii, and prescribed the rites of worship. He reigned 39 years, and in all that time, as Livy relates, there were no wars, famines, or plagues. He was buried under the Janiculum hill. At his death the nymph Egeria, who had been his guide and counsellor through life, melted away in tears, and was changed into a fountain. According to popular tradition he had also derived much of his knowledge from the Greek Pythagoras, which critics generally regard as an anachronism, though according to Niebuhr the personality of Pythagoras is no more certain than that of Numa. The sacred books of Numa, prescribing religious rites and ceremonies, were said to have been buried near him, and to have been discovered 500 years afterward (181 B. C.).

NUMANTIA, an ancient city of Spain, and the capital of the Arevaci, supposed to have been in Hispania Tarraconensis, on the present site of Puente de Don Guarray, on the Douro, 3 m. N. of Soria, Old Castile, where ruins exist. It was the most important place in all Celtiberia. After the fall of Carthage, the Numantines resolved not to surrender to the Romans, and defeated in succession the consuls Quintus Pompeius, Popillius, Mancinus, and Lepidus, who were sent against them. Finally, Scipio Africanus the younger besieged them with 60,000 men. The Numantines, who numbered no more than 4,000 able to bear arms, held out bravely for 14 months, when, their provisions being exhausted and their sources of supply cut off, they set fire to their houses and killed their wives, their children, and themselves (133 B. C.). The conqueror took the title Numanticus.

NUMBERS, one of the canonical books of the Old Testament, and the 4th of the 5 books of Moses. It is called in the Hebrew canon *Be-midbar*, "in the desert," from a leading word in the 1st verse of the opening chapter, and describes the numbering of the children of Israel, the continuation of the laws given to Moses in the wilderness of Sinai, the march through the wilderness, the rejection of a whole generation, and the entrance into the land of Canaan. Historically it comprehends a period of 38 years, opening with the second month of the second year after the deliverance from the land of Egypt; but it is chiefly confined to the first and last of these years. The authenticity of the book of Numbers has frequently been impugned, and some critics who admit its genuineness are disposed to give it a mythical character; but the majority of biblical students receive it literally, alleging its minute and straightforward narratives and other internal marks as strong objections to such a hypothesis.

NUMIDIA, an ancient country of northern Africa, corresponding to the modern Algeria, and bounded, in the time of its independence, N. by the Mediterranean, E. by the river Tusca (now Wad-il-Barbar), which separated it from the territory of Carthage, and W. by the Malva or Mulucha, which separated it from Mauritania. On the south it extended indefinitely toward the Great Atlas range and the land of the Gætuli. It was divided into an eastern and western part by the river Ampsaga, was intersected by the Lesser Atlas, and was rich in good pastures, owing to the numerous streams which flowed from that range into the sea. In early times the country was occupied by tribes of Asiatic origin, from whose nomadic mode of life it was supposed by some to have received its name (Gr. Νομαδια, or ἡ Νομαδικη). Among the principal towns of Numidia were: Hippo Regius (now Bona), the capital of the Massylians, and see of St. Augustine; Cirta (Constantine), the residence of Masinissa; Zama, famous for the defeat of Hannibal; Cæsarea, which at a later period gave name to Mauritania Cæsariensis; and Siga, the capital of Syphax. The Numidians were renowned as skilful horsemen. When the Romans, during the 2d Punic war, first entered into relations with the Numidians, the Massylians were the principal tribe E. of the Ampsaga, and the Massæsylians W. of it. Masinissa, the son of Gala, a king of the former, having allied himself with the Romans, after various struggles became master also of the possessions of Syphax, the rival king of the Massæsylians, and in a long reign made the united kingdom powerful and prosperous. Of his 3 sons, who according to his will divided the country after his death (148 B.C.), Mastanabal and Gulussa died soon after, and the kingdom was reunited by Micipsa, who died in 118, bequeathing his possessions to his sons Adherbal and Hiempsal, and to his nephew Jugurtha. The former soon fell victims to the treachery of the latter, who himself ended his life in a dungeon of Rome, as captive of the republic (106). Numidia was bestowed by the conquerors on Hiempsal II., a prince of royal blood, whose son and successor Juba, having fought with the adherents of Pompey against Cæsar, shared in their defeat at Thapsus (46), and died by his own hand.

Numidia was made a Roman province, and its western part as far as the river Saldæ annexed to Mauritania. Augustus restored Juba II. to his father's kingdom, but subsequently made him king of Mauritania and the land between the Malva and Saldæ, converting the territory between the latter river and the Tusca into a Roman province. Another part between the Saldæ and the Ampsaga being annexed to Mauritania under Claudius, the eastern division alone, also called New Numidia or Numidia Proper, formed a province of the later empire.

NUMISMATICS, the science of coins and medals. Strictly, the study of numismatics has no relation to the value of coin as a circulating medium, but only to the history of coins and medals in all ages and countries, the formation of collections of such memorials as are furnished by the gold, silver, and copper issues of coins and medals, and the study of history as illustrated by the images and superscriptions which they bear. In the articles COINS and MONEY some information has already been given on this subject, which it may be necessary to repeat in part under the present head. The study has its chief value in illustrating history. Coins of all periods have borne on their faces either mythological or historical figures; and in the acquaintance which their study gives us with the portraits of distinguished persons, in its preservation of ancient works of art, in the representation of ancient manners and customs, and in the illustrations it furnishes of ancient literature, may be found ample justification of the attention it has received. —A coin is a piece of metal bearing an impressed device, and designed for circulation as money. A medal is a large piece of metal struck with one or more dies, intended to commemorate some event, and not designed for circulation. A medallion is now generally understood to be synonymous with a medal. A medallet is a small medal, and usually but not necessarily of inferior workmanship. A token is a small medal, usually but not always of the same size with the current coin of the country in which it is struck, and issued for purposes of private individuals. The obverse of a coin or other piece is that side which bears the portrait or principal design indicating the country, nation, or object for which it was struck. The other side is the reverse. The head or portrait on a piece is said to face to the right or left with reference to the beholder's right or left hand. When the design on a specimen varies in any decided characteristic from one already known, while the general object and purpose is manifestly the same, this is said to constitute a new type. When the variation is very slight, as in the size of the lettering or the distance between letters, it is classed as a variety. Proofs are coins or medals struck from the original die as it leaves the hands of the die cutter, and are thus distinguished from specimens struck with dies which have been reproduced by pressure from the original dies. Pattern or mint pieces are coins struck in any mint and proposed for adoption in the coinage of a country, but not adopted in the year of their first manufacture. The abbreviations AU. or AV., AR., and Æ. signify respectively *aurum*, gold, *argentum*, silver, and *æs*, brass or copper. Electrum, a native amalgam of silver and gold, was also used in ancient times for coins. The term billon denotes a debased silver used in some coinage. Brass was used for coin in ancient times, and is frequently used in modern times for tokens and medallets. Potin is a softer alloy than billon. The field on a coin or medal is the open space not occupied by a device or inscription. The exergue is variously understood as the open space outside the figure and inscriptions, or as the portion of that space below the main device, and distinctly separated from it. Strictly, the exergue only belongs to the reverse of a coin, but in America this distinction is not preserved. The legend is usually understood to be any inscription other than the name of the monarch or personage represented on the coin or medal. The inscription includes any legend, names, titles, &c. A mint mark on a coin is the private mark placed on it by the mint to indicate genuineness, or the place of coinage, or for some other purpose. The size of coins or medals is measured among numismatists by arbitrary scales. In Europe Mionnet's scale is generally used. In America a scale of sixteenths of an inch is much in use, and a medal of size 24 is 24 sixteenths of an inch in diameter across its face.—The study of coins and medals and the collection of cabinets of specimens have been pursued for a long period. It is probable that the Romans gave much attention to the science of numismatics, and it seems also likely that some fine specimens now in modern cabinets have occupied similar positions in collections of Roman virtuosi. But the science was never pursued with great ardor until comparatively modern times. Petrarch was traditionally the first of modern collectors. Since his time collections have increased vastly, until now there are very many fine collections in every civilized country. The British museum collection contains over 120,000 varieties; the Paris collection is somewhat larger, and each is increased by the addition of 3,000 to 4,000 pieces annually. No large collections have been made in America, but numerous small and valuable private cabinets are known.—Up to the 9th century B. C. the metals had been used for the purposes of exchange by weight. It is an interesting fact that the earliest recorded use of money for a purchase is that of Abraham buying a grave for his family. In this instance he is said to have used shekels; and this Hebrew word receives some explanation from a similar transaction recorded of Jacob, where the price paid was "pieces of silver." The word here translated "pieces of silver" may also be translated "a lamb;" and the question has arisen whether the payment was not made in lambs or in live stock. An Egyptian picture of very early date has been discovered in a tomb, which exhibits a scribe weighing out rings of gold and silver, and using small weights shaped like lambs and half lambs. This would seem to indicate that the first standards of money may have been the value of animals of this kind; and the idea receives further encouragement from the fact that the Romans in the 6th century B. C. commenced their first coinage of brass with the issue of large pieces bearing on their faces the images of animals of domestic use. Hence came the word *pecunia*, money, from *pecus*, the flock; and our pecuniary, derived from this, may thus carry us back to the very earliest periods of dealing between man and man in barter and sale. Rings of metal, usually gold or silver, had been used as money for a long time prior to the origin of coinage. The Egyptian monuments illustrate these rings, and in Britain great quantities have been found, some of large size, seemingly worn over the shoulder or around the body as ornaments, but probably serving the purposes of money, as indicated by the fact that their weights are all exact multiples of one and the same standard or unit. The Greeks are said to have used bars or spikes of metal, and from this came the Greek nomenclature, an oboliscus (*οβολισκος*) being an obelisk or spike, and 6 oboli making a drachma (*δραχμη*), a handful, the latter being to the present day the name of a coin in Greece, and having passed into various languages as a weight and measure.—The oldest coins extant are probably those of Ionia, having been produced at Miletus, a city on the coast S. of Ephesus, in the 9th century B. C. This coinage was a stater of gold (or electrum), having a rude punch mark indented on one side and a lion's head raised on the other. The coin was evidently driven into the die with the punch. This continued to be the general style of coinage for some time in the Greek countries. The first improvement in the art consisted in giving to the end of the punch some rude design, which was followed up by making the punch correspond to the die, so as to produce a coin with a design convex on one side and concave on the other. This again gave place to the ordinary style of coins ever since in use. The honor of originating coinage has been by some assigned to Lydia, instead of Ionia; by others to Ægina, where silver was first coined; and by others still it has been supposed that the Persian Daric was of the earliest date. The earliest gold coinage was the stater or standard (a coin not varying much from the size and value of an English sovereign), and its fractions. The silver coinage was the drachma and its multiples, the most common of the latter being the didrachma or 2 drachmas, and the tetradrachma or 4 drachmas. At a period not long after the origin of the art the various sizes and values of coins were much increased, and we have gold distaters, commonly called gold tetradrachmas, hemistaters, commonly called gold drachmas, and silver octodrachmas and pentadrachmas, and various other sizes of both metals.—In classifying the coins of the ancient world, the grand divisions may be stated as the Greek, the oriental, and the Roman, each of these comprising under its general name the coins of cities, colonies, and sometimes of barbarian nations who adopted types belonging to one of the great classes. There are coins of Spain, Gaul, and Britain, which may be placed in each of these classes. The great popularity of the gold coins of Philip of Macedon led to the adoption of rude imitations in many of the barbarous nations, those mentioned above among the number. The first coinage of silver was that of Ægina, at a date not long after the first Ionian coinage of gold. The die was still of the earliest known form, and the extant pieces bear the rude punch mark on the reverse, and an almost equally rude design of a tortoise on the obverse. The usual inscriptions and devices on the earliest coinage of the Greeks were of a sacred character. The first types were generally of local genii, river gods, animals, nymphs, and the like. These were succeeded by heads of the gods. The inscription was usually the name of the city, country, or monarch issuing the coin, and in the genitive case; thus, ΑΛΕΞΑΝΔΡΟΥ, of Alexander. By some the word money is understood; by others (especially Mr. Burgon, an eminent English numismatist) the use of the genitive is supposed to refer to the type or figure represented on the coin, as Minerva of Athens, Arethusa of Syracuse, &c. The latter supposition is however difficult when applied to such coins as the Ptolemaic, which have only the head of Jupiter and an eagle, and the inscription: "Of Ptolemy the king." Portraits do not appear on coins till the time of Archelaus I. of Macedon. Even his head is doubtful, and some contend that no human head appears on a coin until after the death of Alexander the Great, when his head was admitted as in some sort that of a divinity, and thus for the first time broke in on the Greek dislike to the profanity of placing a human image where the gods had a sort of right of possession. The reverse types remained sacred for a long period, and it seems probable that all the representations found on ancient coins of statues, groups, monuments, &c., are copies of actual existing objects of public devotion or respect and admiration, instead of being the mere fancy of the engraver.—The Greeks, having originated the art of coining, have also the credit of bringing it to its greatest perfection; and although modern art has invented new processes for striking coins, and as a result of machinery has created a greater uniformity in coins as to appearance and shape, yet the most elaborate modern coins cannot be said to surpass the coins of the Macedonian empire in purity of metal, or boldness and beauty of design. In the period of Alexander the Great the gold coinage of the empire was immense, and the head of Philip on those of his father and the name Φιλιππου (the son of Philip) on his own gave to these coins the name of Philips, which they retained through many reigns, like the louis d'or of France in modern times. The gold coins of Alexander are even at the present day abundant, and there are doubtless more specimens of them now in existence and in the hands of collectors or travellers who have picked them up than could be found of any American gold piece of the last century.—The spread of the art was very rapid. There was almost no colony of Greece, and certainly no independent nation, which did not have its coinage. The labor of the numismatist becomes herculean when he would trace the various coinages. There are extant more than 1,000 series known under the name of Greek autonomous coins, or coins of self-governing cities, many of them of large extent in point of numbers. We have also the splendid series of the Parthian kings, the more splendid Macedonian, and the Armenian, Bactrian, Syrian, Thracian, Bithynian, Cappadocian, Carian, the Ptolemaic series of Egypt, and almost countless others, all including large varieties extending through many years, sometimes through centuries, and all distinct from the Roman empire and its dependencies.—The Chinese coinage was of very early date. Some specimens are said to be of as early a period as the 21st year of King-wang of the Tcheow dynasty (523 B. C.); but Baron de Chaudoir, the best authority, thinks there is no certainty of any prior to Chi-hoang-ti, of the Tsin dynasty (247 B. C.). The form was similar to that now known, circular with a square hole in the centre, and the metal copper. The Hindoo or Indian coinage is of early origin, but the date is obscure. There are square copper coins with a Pali legend, which are conjectured to be of the 3d century B. C., but the earliest certain dates are about 100 B. C. It would be obviously impossible to trace the spread of the art through the world, or even to give an outline of the several great classes under which the ancient coinages have been arranged. The Hebrew nation seem to have been singular in this as in many other customs. They had no coin of their own until the time of the Maccabees, when Simon, by virtue of the decree of Antiochus (1 Macc. xv. 6), issued a coin known as the shekel, and also a half shekel, with such inscriptions as "Shekel Israel," "Jerusalem the Holy," and "Simon prince of Israel." This coinage does not appear to have been continued after the time of the Maccabees. These, with some small brass coins of the Herods, Archelaus, and Agrippa, and a doubtful coin attributed to Bar-Cokeba, the leader in the last rising against the Romans, are the only coins of Judæa which are extant.—The Romans began the coinage of brass in the reign of Servius Tullius, 578 B. C. The name of the metal, *æs*, gave the name to the standard or unit coin, which was called the *as*. The *as* was in fact at first a pound of copper, and hence the coinage is known as the Roman libral coinage. The fractional coin was the *uncia* or ounce, the 12th part of the *as*. In the course of time the weight of the standard was largely reduced. At the time of the 1st Punic war, about 261 B. C., it was ⅙ of its former weight; about 217 it was reduced to one ounce, and in 191 to a half ounce. Silver was first coined in Rome about 270 B. C., and gold about 207. The Roman gold coin which was the standard was the *aureus* or *aureus nummus*, answering to the Greek stater. The silver coin which may be considered the unit of the silver currency was the *denarius*, probably originally intended to be of a weight corresponding to the drachma of Greece. This *denarius* continued to be used throughout the history of the Roman empire, and was the predecessor of the English silver penny, known by the letter *d.* in the nomenclature *£. s. d.* These *denarii* are found in immense numbers and variety. For a long period before the empire, and even after its commencement, family names and devices were used on the coinage of various portions of the Roman possessions. These coins are now classed as the Roman family coinage. The imperial coinage succeeded, and numismatists are accustomed to class the gold, silver, and copper or brass coinage distinctly, dividing the latter into 1st, 2d, and 3d classes, according to size. Some of the emperors evinced a respect for coins as monuments by restoring the coins of their predecessors, that is, reissuing them with an inscription indicating that they were *restituti*.—In the eastern empire the coinage became very rude; and in mediæval times the art of coinage had so far receded instead of advancing, that the coins of Europe and the East during that period are in no respect better than the rudest form of Ionian coinage. The Saracens indeed were quite equal to the Christians in the art, and the best coins of Europe during this time were imitations of the splendid Macedonian coinage, so miserably poor as to be ludicrous. The various provinces of Europe issued a rude form of coinage, from which gradually sprang the present magnificence of the art in all parts of the civilized world. But during the middle ages, especially from the 10th to the 13th century, the coinage of all Europe was a close imitation of the Byzantine currency, itself exceedingly rude and imperfect; and it is in England that we first find the art beginning to emerge from its state of depression. England probably had no coinage prior to the Roman invasion. There are extant numerous small silver pieces bearing the names of early British princes contemporary with Julius Cæsar; but whether they are of that period, or, as has been suggested, are tokens struck at a later time, remains a subject of discussion. The Saxon *skeattæ* were the first English coins of which we have any certain knowledge. They were of silver, and worth about the same as the *denarius* or silver penny. They in fact gave place to the silver pennies of the Saxon kings, of which many are extant, the earliest known being one of Ethelbert II., king of Kent in the 8th century. William I. introduced the Norman shilling as a name of money, but not as a coin. The Saxon *scilling* or shilling was 5 pennies, changed afterward to 4 pence. The shilling was first struck as a coin in the reign of Henry VII. A few gold pennies were struck in the reign of Henry III., but the English gold coinage was first fairly commenced under Edward III. by the issue of florins and half and quarter florins, names derived from an early gold coin of Florence; but these were recalled, and the gold coinage of nobles commenced. From this period the English coinage has been progressing to its present perfection. The only feature in it which we pause to notice is the occasional issue of siege pieces or pieces of necessity, which are known to numismatists, and some of them highly prized. They were pieces of plate or even gun metal, cut up and stamped at times when royalty was forced to such a use of bullion in the absence of a mint, or in its own absence from mint conveniences. In the latter half of the 18th century, when copper money became scarce in England, a large issue of tokens was made by private tradesmen. These were usually of the value of a penny or a halfpenny, and corresponded in size to those British coins. Among them were numerous devices referring to America and the late revolution, and on several the head of Washington appeared. (For the history of coinage in America, see COINS.)—The issue of medals seems to have been a very early custom. Many of the largest pieces of ancient coin so called are more correctly to be considered as medals, struck for prizes in the games, or in commemoration of great events. The Roman series of medals or medallions is very extensive in gold, silver, and brass or copper. They are usually larger than the largest known coin in the same metal, and, though multiples of the same unit, were not coins. The gold medals begin with Constantine, and continue to the fall of the empire; the silver begin under Gallienus, and continue as long; the copper from Augustus to Alexander Severus. In more modern times the art of medal making has been brought to great perfection, and most of the nations of Europe have adopted the plan of preserving their history by these durable monuments. The numismatist collects medals with quite as much interest as coins. In general, however, collectors find it sufficient to devote their attention to the medals of their own countries. The French series is perhaps deserving of special mention as the most perfect and complete in the world. It commences under Louis XI. and continues to the present date, illustrating every important event in the history of France. The English series is not to be compared with the French. It commences under Henry VIII., and continues with many long intervals to the present time; but as works of art the medals of England have not high rank. England has adopted a plan of striking medals commemorative of battles, which are presented to deserving soldiers; and to avoid the inconvenience of carrying several large medals on the breast, the plan is now adopted of adding a new clasp to the ribbon, inscribed with the name of the battle, in place of giving a new medal. The British battle medals form an admirable series. The Italian and German medals of modern date are very fine; the mediæval are interesting and bold in design, but rude in execution. The papal series, commencing with Paul V., may be mentioned as worthy a collector's attention. In America there were few medals struck until a comparatively late period. The revolutionary medals, presented by congress to officers of the army and navy, are the first of the series. These were all or nearly all struck in France. The issue of medals from the mint has been chiefly confined to the occasional striking of one to be presented to Indian chiefs, or presentation medals ordered by congress. Agricultural societies and others issue medals as prizes, and of these there is a large and increasing variety. Medals are struck in gold, silver, copper, and white metal. Bronze medals are copper medals bronzed. White metal is a composition, nearly as soft as lead, the alloys varying according to the taste of the manufacturer. Political medallets and tokens are often struck in this composition.—Coins and medals would be more valuable aids to illustrations of the study of history were it not for the existence of counterfeits, both of ancient and modern manufacture. Some able artists have devoted their talents to the production of false specimens of rare ancient coins. Benvenuto Cellini did not disdain this employment. Two artists at Padua produced so many that the name Paduan was applied as a common epithet to all such coins. Devrieux and Weber at Florence, Carteron in Holland, Congornier at Lyons, La Roche in another part of France, and Caprara at Smyrna, were among the chief counterfeiters; and their work has become a matter of numismatic interest, so that their coins command high prices as curiosities. They either altered known coins, or struck new ones, or split the old specimens and rejoined the halves which did not belong to each other. The rare coins of Otho, Pescennius, Pertinax, and other Roman emperors, are most commonly imitated. American colonial coins and rare pieces are manufactured very skilfully in New York, and nothing is more common than to find rare dates on coins carefully altered from common years. The electrotype process, of course, is a great aid in this species of fraud. The deception has been carried so far in the East as to supply Arabs with coins, who pretend to dig them from the sand before the eyes of a deluded traveller.—The prices of coins and medals have varied as the taste of collectors has been directed more toward one or another series or class. Very rare ancient gold and silver pieces have been sold by auction in

England for prices as high as $1,500, when the intrinsic value of the metal was less than $1. Some American colonial coins bring high prices at sales. The Washington half dollar of 1792 has been sold by auction for $57, and the same piece in copper for $64. The Granby copper has been sold at private sale for $50. Cents of 1793 and 1799 have been sold for $10 and $15, and half dollars of 1796 and 1797 for $25. Collectors generally prize fine and uncirculated pieces, even of common dates, at higher rates than poor pieces of rare dates.—The number of works on numismatics is believed to be many thousands. On ancient coins, see *Doctrina Nummorum Veterum*, by Joseph Eckhel (9 vols. 4to., Vienna, 1792–'8), and *Description des médailles antiques*, &c., by T. E. Mionnet (6 vols. 8vo. and 1 vol. plates, Paris, 1806–'13; with supplement, 9 vols. 8vo., 1819–'37); on British coins, "Annals of the Coinage of Great Britain and its Dependencies," by the Rev. R. Ruding (3 vols. 4to., London, 1840); "A View of the Coinage of Scotland," by John Lindsay (4to., Cork, 1845), and "A View of the Coinage of Ireland," by the same (4to., Cork, 1839); on American coins, "The American Numismatical Manual," by M. W. Dickeson (4to., Philadelphia, 1859).

NUNCIO (Lat. *nuntius*, messenger), a prelate representing the Roman pontiff near a foreign government. Strictly speaking, he represents the pope only as temporal sovereign, but he is often commissioned to treat of spiritual affairs, and to report on the condition of churches and the character of church dignitaries, especially of candidates for the mitre. A nuncio may be resident or extraordinary; and if appointed simply to fill a vacancy, he is styled an internuncio. The nuncio in France is forbidden by law to exercise ecclesiastical jurisdiction, being recognized only as the papal ambassador. The only nuncio who has ever visited the United States was Archbishop Bedini, in 1853.

NUÑEZ, ALVAR (CABEÇA DE VACA), the earliest and most remarkable explorer of North America, and one of the associates of Pamfilo de Narvaez, the first governor of Florida. Having obtained from the king of Spain an appointment as governor of Florida, Narvaez fitted out an expedition for the purpose of exploring and taking possession of this country. He was "authorized and commanded to conquer and govern the territories that extend from the river Palmas to the cape of Florida, which are on the main land." His chief officer was Nuñez, better known as Cabeça de Vaca, who is styled "treasurer and high sheriff." The flotilla, which consisted of 5 ships with 600 men, sailed from the harbor of San Lucar de Barrameda, July 17, 1527. Arriving at St. Domingo, they remained there 45 days to procure certain necessaries, but chiefly horses. After stopping at various places for supplies, and meeting with many delays, they arrived at Xaqui, where they wintered. Sailing again with 400 men and 80 horses, they reached the coast of Florida, where they landed, April 12, 1528. Narvaez now directed the flotilla to follow the coast westward to a certain haven, and there await his coming; while he, accompanied by Nuñez, entered the interior with 300 men in search of a place called Apalachen, where, he was told by the natives, there was a great quantity of gold. They reached this place on June 20, and remained at it 25 days. Disappointed in the object of their search, they proceeded to a place called Aute, and thence to a river which Narvaez named Madelena, following which they reached the sea. The country traversed possessed few attractions, and most of the Indians whom they met showed great hostility. The Spaniards also suffered greatly by sickness; they were disappointed in their expectations of finding gold, and were sick and disheartened when they reached the coast. Narvaez did not find his fleet as he expected, nor did he know whether or not he was at the appointed haven. It seems that his officer in charge of the ships did not make any effort to reach the place of rendezvous, but returned to Havana, leaving the governor and his companions to their fate. To get away from this region they must construct boats for 300 men. Without tools, forge, oakum, pitch, or ropes, and with a limited supply of provisions, this was a task of great difficulty. In the emergency, one of the men said that "with certain pipes of wood and skins of wild beasts, he would make bellows that should be made to blow." This revived their hopes. They then took their spurs, stirrups, crossbows, and other articles of iron, and converted them into nails, saws, hatchets, and other necessary tools. While the work was going on, they supplied themselves with maize from Aute, and every third day killed a horse. For oakum they used the bark of the palmetto, which they caulked with a species of gum from a pine tree. For cordage they used the palmetto, as well as the hair from the manes and tails of their horses; and for sails they used their shirts. For water vessels they flayed the legs of their horses whole, and sewed the skins together. On Sept. 20 they had completed 5 boats, in which the whole party, now reduced to 242 men, embarked. But when all their effects were shipped, the boats were scarcely above water, and so crowded were the men that it was with the greatest difficulty they could manage them. A few days afterward they obtained an Indian canoe. They followed the Florida coast for 47 days, when they landed on a small island where they were detained by a violent storm. Here 5 of the men died from the effects of drinking salt water. After this they followed the Indians and obtained fresh water; but the same night the natives rose on them and drove them off, wounding many, among them the governor. After continued suffering from hunger and thirst, from attacks by the Indians, from violent tempests and severe cold, they at length reached the mouth of a large river, and landed on an island. They attempted to go up this river, but the current was so strong that they were driven back. From the description given by Nuñez of its strong current, and the distance it was found to be fresh after it entered the sea, it is believed to have been the Mississippi. If so, Narvaez was the first to discover the mouth of this river on one of the latter days of October, 1528. They continued their voyage a few days further to the westward, buffeting the winds and waves, when they were overtaken by a violent storm, which scattered their boats and drove them out to sea. As nothing was ever heard of them afterward, except those in a single boat, they doubtless perished. The boat containing Nuñez was wrecked on a small island, from which the survivors reached the mainland. They now made their way westward amid unheard of hardships, in which they were driven to such straits that they lived upon one another. Nuñez states that from May he had eaten nothing but maize, save in a few instances when fish were obtained near the coast. In tracing his wanderings, we follow him far to the north and west, and across the broad plains and deserts where he finds the buffalo, until he reaches a mountainous country which is believed to have been New Mexico. The fact of his meeting with the buffalo, which has never been found in western Texas south of the great plateau or desert plain, which does not furnish sustenance for them, is evidence that he traversed the country far to the north. His various courses, and the large streams crossed and followed, all go to support this theory. In some places the wanderers found the natives suffering from an epidemic. They all now became doctors, and were remarkably successful in the cure of diseases, gaining thereby a great influence over the natives, who imagined them to be from the sun. "So great," says Nuñez, "was their confidence in us, that they thought they could not be healed but by our hands; and they believed that as long as we remained, not one of them would die." The Spaniards took advantage of their influence, and endeavored to instil into the minds of the natives the doctrines of Christianity. This instruction, the enthusiastic historian of the Jesuits believes, paved the way for the missionaries that followed a few years after, as it obtained for them a kind reception. Among the numerous Indian tribes visited by Nuñez, those of the present day cannot be recognized; but he says they "travelled through so many sorts of people, of such divers languages, that the memory fails to recall them." Their mode of life does not materially differ from the accounts given by late travellers. Nuñez remained 8 months among the Indians of New Mexico, after which he pursued his journey westward and southward, crossing mountains, broad deserts, and rivers, until 1536, when, with 3 survivors, he reached the Spanish settlements in Culiacan, on the shores of the Pacific. He was therefore 8 years in crossing the continent from the shores of Florida, after a series of adventures the most extraordinary that ever befell any explorer of the American continent. Of his companions, 2 were Spaniards and the other was a negro from the coast of Barbary, named Estevan. Thus did Nuñez plant the cross upon the Rocky mountains, and make known the doctrines of Christianity, nearly a century before the arrival of the English on the shores of New England. The accounts given by him on his arrival in Mexico awakened a desire to explore and subjugate the countries he had visited; and soon after Marco de Niza, a Franciscan monk, set out on an expedition for the purpose, with Estevan, the negro, for his guide. The expedition proved a failure, and Estevan lost his life. Other attempts to explore the distant countries referred to followed, the most remarkable of which was that which set out under Coronado in 1540. An abridgment of Cabeça de Vaca's narrative may be found in Hakluyt's "Voyages," and a French version in the collection of voyages published in Paris by Ternaux-Compans; but the fullest and best is a translation by Buckingham Smith, secretary of the U. S. legation in Spain, with annotations (privately printed, fol., Washington, 1851).

NUÑEZ, Fernan, a Spanish scholar and soldier, born in Valladolid about 1470, died in Salamanca in 1553. As a member of the house of Guzman he was knight commander of the order of Santiago; and being also the greatest Greek scholar of his country, he was commonly called the "Greek commander." After his return from Italy, whither he went to perfect himself in the Latin and Greek languages, Cardinal Ximenes appointed him one of the Cretan professors of Greek in the university of Alcala, and also intrusted to him and to Lope de Astuñiga the Latin version of the Septuagint for the Complutensian polyglot. In 1521 he fought on the side of the commons in the "war of the *communidades*." Being forced to leave Alcala, he went to Salamanca, and in the university there taught Latin, Greek, rhetoric, and the "Natural History" of Pliny, until his death. He restored the text of Seneca, and published a commentary upon his writings (Salamanca, 1543); also *Observationes in Pomponium Melam*, *Observationes in Historiam Naturalem C. Plinii* (1544), and *Glosa sobre las obras de Juan de Mena*. At the age of 80 he was engaged in making a collection of Spanish proverbs, with explanations, and parallel sayings from other languages, which was completed and published by a friend after his death, with the title *Refranes y proverbios glosados* (4to., Madrid, 1555).

NUÑEZ, Pedro, a Portuguese mathematician, born in 1492, died in 1577. He was royal cosmographer and professor of mathematics in Coimbra, and wrote on topics connected with geometry, navigation, the projection of charts, and the improvement of astronomical instruments. He devoted himself especially to the advancement of the art of navigation, and he is considered as the discoverer of the loxodromic curve or spiral. He proposed in 1542 a new graduation of the circles of astronomical instruments, which bears his name.

NUÑEZ, Rio, a river of Senegambia, which falls into the Atlantic in lat. 10° 40′ N., after a W. S. W. course of 150 m. The country on its banks is thickly wooded and very unhealthy. About 20 vessels of from 200 to 300 tons each visit this river yearly for the purpose of trade. The imports are chiefly British manufactures and salt; the exports, principally to France, are gold, ivory, hides, wax, and ground nuts.

NUREMBERG (Germ. *Nürnberg*), a city of Bavaria, in the province of Franconia, situated on the river Pegnitz and on the Ludwig's canal, 144 m. by railway N. by W. from Munich, and 106 m. N. from Augsburg; pop. in 1858, 59,177, including 5,000 Roman Catholics and a number of Jews, the remainder being Protestants. The city is surrounded by an ancient wall with 8 gates and about 70 round and square towers, and a moat. The Pegnitz forms 3 islands within the wall, connected with each other and with the city by numerous bridges, the circuit within the wall being nearly 3½ m. The river divides the city into two irregular parts, the southern and larger being called the Lorenzer side and the northern the Sebalder side. The impression of quaintness and antiquity which the general aspect of the city produces is heightened by the old Gothic style of architecture, and the old-fashioned internal arrangement of many of the houses, their narrow fronts in many instances adorned with paintings. Among the most notable Protestant churches are those of St. Sebaldus, St. James, and St. Ægidius, all more or less distinguished for their works of art. The finest and largest of them all is that of St. Lawrence, a Gothic building of the 13th century. The church of the Holy Ghost, which was restored in 1850, contained the jewels of the imperial German crown from 1424 until 1806, when they were removed to Vienna. The Roman Catholic church, or *Frauenkirche*, is remarkable for its richly ornamented Gothic portal. The town hall of Nuremberg is one of the most remarkable buildings of the kind in Europe, on account of its large size, as well as of its collection of paintings by Albert Dürer and other masters. Beneath the building are secret and subterraneous passages; also the *Lochgefängnisse* (dungeons scarcely 6 feet square), and the *Folterkammer* or torture chamber, in which during the 15th and 16th centuries prisoners were put to the rack. The old fortress (*Reichsfeste*), situated on a steep eminence, contains a famous gallery of pictures in 10 rooms and many paintings on glass. The cemetery of St. John contains the tombs of Dürer and Hans Sachs. A statue of the former was erected in 1840 on the Albrecht Dürer's Platz, near the house where he resided. Nuremberg has many fine private buildings and several elegant public fountains. The public library contains upward of 50,000 volumes. Among the educational institutions are an excellent gymnasium, polytechnic, agricultural, mercantile, and normal schools, and a school of design. Since 1857 Nuremberg has become the seat of a new national institution (*Germanisches Museum*) founded in 1853 by Baron Aufsess for the promotion of researches in ancient German history and archæology. A periodical for *Deutsche Cultur-Geschichte* was established there in 1856 by Müller and Franke, and the *Nürnberger Correspondent* is one of the most widely circulated newspapers of Germany.—Nuremberg was once one of the most prosperous of the free imperial cities, with a population of 100,000 and an extensive trade with the East and other remote parts of the world. It was not less celebrated in the history of art and literature. In the 16th century it was the headquarters of the master singers, and derived great reputation from the genius of Hans Sachs, as well as from that of Dürer, Behaim, and other eminent men. The reminiscences and traces of its former glories continue to make Nuremberg one of the most interesting cities of Germany. It suffered much from the 30 years' war and lost its former commercial greatness, but has improved within the present century, particularly through the influence of railways and the Ludwig's canal, and is now again famous for its industrial activity, particularly in gingerbread, papier maché, toys, &c.

NUT, in botany, a hard-shelled, one-seeded fruit, such as the acorn, chestnut, filbert, beech nut, &c. A variety of useful fruits are known as nuts in horticulture. The European walnut, also called the Madeira nut (*juglans regia*), is much esteemed; when in a tender and unripe condition it is employed for making pickles, and when ripe is used in large quantities as a table dessert. There are many kinds of the Madeira nut known, which are reputed to be of superior quality. The hazel and the filberts are extensively cultivated for their nuts. (See Filbert.) The chestnut tree (*castanea vesca*) of Europe produces excellent nuts, especially the large-fruited kind, or Spanish chestnut. A dozen or more distinct sorts of chestnuts are known among the French cultivators. The common chestnut of the United States is the product of the *C. vesca*, variety *Americana*, and is smaller and sweeter. The chinquapin bears a small sweet-flavored nut of half the size of the common kind; it is the fruit of a dwarf species growing only 6 to 10 feet high, and found in the middle and southern United States. The several species of *carya* bear nuts, of which the shell-bark hickory (*C. alba*, Mx.) has a very sweet kernel, which renders it the best native nut; that of the mocker-nut hickory (*C. tomentosa*, Mx.) is also sweet, but the thickness of the shell nearly precludes its use. The fruit of the black walnut (*juglans nigra*, Linn.) has a round deeply furrowed nut, containing a rich kernel of very agreeable taste; while the butternut (*J. cinerea*, Linn.) has a sweet and pleasant kernel, in a nut which is rounded at base and acute at the end, the sides deeply furrowed, and the edges sharply keeled. The fruit of the beech tree (*fagus sylvatica*, Mx.) contains two prismatic triangular nuts, having rich oily kernels; they are called beech mast, and from them is manufactured an oil, which in France is used both for cooking and for burning in lamps; in some parts of that country they are also roasted and employed in place of coffee. The beech mast of our woods is eaten by many kinds of wild animals, and in some districts large numbers of swine are fattened upon it. The acorn of the oak is composed of the cupule and the nut; that of the white oak (*quercus alba*, Linn.) has a sweet kernel, and is eaten either raw or roasted; and the acorns of *Q. gramuntia* (Linn.) are sweet and eatable, and are used for food in Spain under the name of *belotas*. The seeds of the stone pine (*pinus pinea*, Linn.) are used as nuts under the name of *pignons*, and contain sweet, oily kernels; the tree that produces them grows spontaneously in the south of Europe.—Some tropical trees produce excellent nuts. Those of the *Bertholletia excelsa* are commonly known as Para or Brazil nuts; the kernels when fresh are delicious and nutritive. The fruit of the *anacardium* is called the cashew nut; it is of the size and shape of a hare's kidney. The kernel abounds with a milky juice, which when fresh has a delicious flavor; but great care is to be observed in removing the shell, between the two layers of which is a quantity of acrid, inflammable oil, which should be destroyed by burning or roasting the nut in the fire, avoiding the smoke in the process. The pistachio nut is the fruit of the *pistacia vera*, a small tree, native of Asia Minor; the nut is a sort of drupe of the size of an olive, of a reddish color, with a very thin rind, a brittle, 2-valved shell, and an almond-like, oily seed; it is used at dessert and in confectionery. The areca nut is the produce of the *areca catechu* of Linnæus, found all over the East Indies; the nuts are astringent, intoxicating, and narcotic, and are used as a masticatory with lime and the leaves of the betel pepper. The cocoanut is the one-celled seed of the drupe of the *cocos nucifera* (Linn.), containing a delicious kernel used for food; the tree grows only near the sea coast, especially upon tropical islands. The physic nuts of South America are the seeds of *curcas purgans* (Adanson); they are cathartic and poisonous. The seeds of the *theobroma cacao* (Linn.), employed in making chocolate, are sometimes called chocolate nuts.

NUTATION, in astronomy, a small periodic gyratory movement in the direction of the earth's axis, by which, if it existed independent of the motion in precession, the pole of the earth would describe in the heavens a minute ellipse. This ellipse would cover a space by its longer axis of 18.5", and by its shorter of 13.7", the longer axis being directed toward the pole of the ecliptic. The nutation period is a little less than 19 years (18.6), and corresponds to that of a revolution of the moon's nodes, with which it is directly connected. The effect of the nutation on the position of the stars is combined with the effect from precession; and as both are referable to the same physical agency for explanation, their further consideration will be found in the article PRECESSION.

NUTCRACKER, a conirostral bird of the crow family, and genus *nucifraga* (Briss.). The bill is longer than the head, strong, with culmen elevated and sloping to the entire tip; the lateral margins straight; gonys very long and ascending; nostrils basal, covered by frontal bristles; wings long and rounded, with the 4th and 5th quills longest; tail moderate, rounded on the sides; tarsi longer than middle toe, covered in front with broad scales; toes long, robust, and strongly scutellated; claws long, sharp, and curved. The common nutcracker (*N. caryocatactes*, Briss.), the best known species, is about 13 inches long, and the bill 1¼; it is about the size and shape of the European jay; the bill and feet are brownish black; the general color dull reddish brown, blackish brown above; the whole plumage, except the top of the head and the upper tail coverts, is marked with oblong white dashes margined with dark brown at the end, largest on the lower parts; lower tail coverts and tips of tail feathers white. This bird, rare in Great Britain, is common in the woods of the mountainous parts of Europe and Asia, especially in Switzerland, and in Russia; they are usually seen in pairs, but sometimes in flocks, migrating according to the season in search of larvæ and insects, which they obtain from trees in the manner of woodpeckers; they are also fond of the seed of fir trees, and of nuts, which they break by repeated strokes of the bill; they are said to devour small birds and eggs. The nest is made in a hole in a decayed tree; the eggs, 5 or 6, are yellowish gray with a few spots of light brown. This bold and familiar bird by its nearly straight bill seems to form a transition from the crows to the starlings, and in some respects to the woodpeckers, the last of which it also resembles in some of its habits.

NUTGALL. See GALLS.

NUTHATCH, a sub-family of tenuirostral birds of the creeper family, scattered over North America, Europe, and India and its archipelago. In the typical genus *sitta* (Linn.) the bill is entire, about as long as the head, slender, compressed, straight, and sharp-pointed, with the gonys long and ascending; nostrils in a groove, covered by bristles directed forward; wings long and acute, reaching nearly to end of tail, the 1st quill being very short, and the 3d and 4th about equal and longest; tail short, broad, and nearly even; tarsi about equal to middle toe, strong and scutellated; toes long, the outer much longer than the inner, the hind toe the longest, and all armed with sharp and curved claws. Nearly 20 species are described; they prefer dense woods, where they run rapidly up and down the trunks and branches of trees in spiral circles, examining the crevices in the bark for spiders and insects; in winter they approach houses, and feed upon seeds, grains, nuts, and other vegetable food. The largest of the American species is the white-bellied nuthatch (*S. Carolinensis*, Gmel.), about 6 inches long, with an extent of wings of 11, and the bill along the gape ¾ of an inch; the bill is black, and iris dark brown; general color above ashy blue, with top of head and neck black; under parts and sides of head to above the eyes white; under tail coverts and tibial feathers brown; concealed primaries white. This is a bold, active, and familiar bird, though generally living in retired woods; the nest is made in the hole of a decayed tree; the eggs, 5 or 6, are dull white, spotted with brown at the larger end; the flight is rapid, and at times protracted; like others of the family, they are fond of roosting head downward. This species is spread over eastern North America to the highest central plains, replaced to the west by the *S. aculeata* (Cassin), which differs chiefly in the more slender bill; in the southern states two broods are hatched in a season; the notes are very nasal. The red-bellied nuthatch (*S. Canadensis*, Linn.) is 4½ inches long, with an extent of wings of 8 inches; the upper parts are ashy blue, with the top of the head black, a white line above and a black line through the eye; chin white, and rest of under parts brownish rusty. The eggs are white, sprinkled with reddish dots. This very restless and active bird is spread over North America from South Carolina to Nova Scotia, from the Atlantic probably to the Pacific. Some remain all winter in the northern states, coming into the roads and farm yards in search of seeds. The brown-headed nuthatch (*S. pusilla*, Lath.), of the southern states, is sufficiently characterized by its name; the length is only 4 inches, and the extent of wings 8; it is lively, with a cheerful note, and is not at all shy. The California nuthatch (*S. pygmæa*, Vigors) is of the size of the last, which it much resembles, but the brown of the head has an olive green tinge; it is found from the Pacific to the Rocky mountains. The European nuthatch (*S. Europæa*, Linn.) is one of the largest of the genus, being 6 inches long, with an extent of wings of 10¼, and bill ¾ of an inch; the upper parts are bluish gray, with the throat and cheeks white, loral space and a band behind the eye black; lower parts light reddish yellow, and sides brownish red. Its manners are the same; the tail is not used as a support either in ascending or descending trees. It is sometimes kept in wire cages for its activity, cunning, and drollery.—Other genera of the sub-family are *sittella* (Swains.), *acanthisitta* (Lafr.), and *dromodendron* (Gray). *Sittella* has a long, rather slender bill, slightly curved upward, and the tip emarginated; the wings reach beyond the tail, the 2d and 3d quills equal and longest; the tail is very short, and somewhat rounded. The species are peculiar to Australia. The nest is made of bark and lichens, attached to each other and to the branches of the highest trees by cobwebs, and from its small size and color is very difficult to detect; the eggs are 3 in number. In *acanthisitta* the bill is long and very slender, and slightly curved at the tip; the species are found in New Zealand, where they are seen on the bushes, searching the branches and leaves for insects and their larvæ; the toes are long and very slender. In *dromodendron* the bill is long, straight, and sharp-pointed; wings long; tail long and rounded, with the shaft of each feather prolonged and rigid, as in the woodpeckers; tarsi robust. Gray alludes to a single species (*D. leucosternum*, Gould), found in the woods of Chili, S. of Valparaiso, and usually seen running up the trunks of lofty trees in pursuit of beetles and other insects.—The bill of the nuthatches is so powerful that it is used for breaking the shells of nuts, which they fix in a cleft or hollow, whence they are sometimes called nutcrackers, a name which properly belongs to the genus *nucifraga*. The French call them *torche-pots*, from their habit of plastering up with yellow clay (*torchis*) the apertures of holes in trees which are too open to make comfortable nests. Unlike the woodpeckers, they descend trees head foremost, in which they must find great assistance in the long hind toe.

NUTMEG, the kernel of the fruit of *myristica officinalis* (Linn.), or *M. moschata* (Thunb.), of the natural order *myristicaceæ*. The common nutmeg tree is a native of the Molucca islands, but is cultivated elsewhere in the East; it has been tried, though unsuccessfully, in the West India islands. It is a very beautiful tree, the foliage being of a rich dark green color, and though of slow growth attains a height of 20 or 25 feet. Level situations are most favorable for nutmeg plantations, as the roots take so slight a hold on the soil that on hillsides they are liable to be washed up by the heavy rains of the tropics. The young plants obtained in the nursery from the seeds, are set in the ground in rows, and require constant weeding and watering, frequent manuring, and careful protection from the scorching heat of the sun. In the 7th year they commence bearing, and increase in fruitfulness to the 15th, when they reach their highest perfection. In the Moluccas they are said to continue prolific for 70 or 80 years. All parts of the tree are very aromatic. The fruit is smooth externally, pear-like in shape, and resembles a peach in size and color. It is produced in great abundance, and its maturity is evinced by the bursting of the rind, through which the brilliant scarlet of the mace and the bright brown shell in which the nutmeg is enclosed are seen. The outermost portion is a thick fleshy pericarp, which when young is occasionally preserved as a sweetmeat. The next is the mace, a peculiar development of the stalk of the seed, which increases with its growth and finally envelopes it, called aril or arillus by botanists. Within it is the nutmeg enclosed in a shell. The tree is in bearing at all seasons of the year, the bud, blossom, and fruit being exhibited at the same time; consequently there is no particular season for gathering it, though the greatest harvest is in the months of September, October, November, and December. The average annual produce of a tree amounts to about 5 lbs. of nutmegs and 1¼ lbs. of mace; and it is said that, should the price of nutmegs diminish very considerably, the raising of them would still be very profitable. The fruit is gathered by means of a barb attached to a long stick, and the outer covering being removed, the mace is carefully taken off, flattened by hand, placed on mats, and dried in the sun for 3 or 4 days, or over a moderate fire. By this process it becomes brittle, and the red tint is changed to orange, while it retains its aromatic odor and taste. It is then made up into packages, and kept perfectly free from moisture. The nuts are placed in their shells upon a hurdle over a slow wood fire, for a period of about 2 months. When dried sufficiently the kernel rattles freely in the shell, which is then broken with a mallet; the damaged or worm-eaten ones are thrown aside, and the sound ones are packed in very strong chests, in well sifted lime or in a mixture of lime and water. Another sort, called the long or wild nutmeg, the product of *M. tomentosa*, is sometimes imported, usually in the shell. It is nearly twice the length of the common nutmeg, and is of a very inferior quality. The common nutmeg is of a round or oval shape, gray color, hard and smooth or slightly furrowed. When grated or broken it presents a mottled veined appearance. The best are dense, heavy in the hand, and emit oil when pricked with a pin; when worm-eaten they feel light, and though the perforations may have been fraudulently filled up, the unsound ones can be easily detected.—The general qualities of the nutmeg and mace, except flavor, are the same. Their odor is fragrant and agreeable, and their taste pungent. Both are much used as a spice in cooking. They contain, according to Bonastre, fat oil 31.6 per cent., volatile oil 6.0, starch 2.4, gum 1.2, free acid 0.8, lignine 54.0. Nutmeg butter (*adeps myristica*), commonly called oil of mace, is a solid yellow fat, obtained from nutmegs by expression. The kernels are bruised into a paste, steamed in a bag, and then pressed between heated plates. It is imported in the form of cakes from the East Indies and from Holland. Most of that found in commerce is a factitious substance of fatty ingredients flavored with oil of nutmeg. In pharmacy nutmeg is sometimes employed to cover less agreeable tastes, and also as flavoring for drinks. When taken in the quantity of 2 or 3 drachms, it has produced alarming effects. The oil is occasionally used externally as a stimulant. For further information, the reader is referred to a paper by Dr. Lumsdaine in the "American Journal of Science," Nov. 1851.—The importation of nutmegs into the United States for the year ending June 30, 1859, amounted to 879,830 lbs., valued at $365,480; and of mace to 45,469 lbs., valued at $16,473.

NUTRIA, the commercial name of the fur of the coypou (*myopotamus coypus*, Cuv.), a South American rodent of the beaver family. The dentition of the coypou is the same as in the beaver; the ears are short and round; the moustaches long and stiff, white with a few black hairs intermixed; the hind feet are fully webbed, but the external or 5th toe is separate from the rest; the mammæ are 4 on each side, nearer the back than the abdomen, covered by hair. The length is 3 feet, of which the tail, which is long, round, and hairy, is one third. It is found in Chili and in the neighborhood of Buenos Ayres, living in the vicinity of water, and burrowing with the powerful fore claws in the banks of streams; it is an excellent swimmer, is easily tamed, and of gentle disposition, and will eat almost any kind of vegetable food; it has from 4 to 7 young at a birth. The fur is of 2 kinds: one of long reddish brown hair, which gives the general color to the animal; and the other brownish ash-colored, at the base of the former, extensively used, especially on the continent of Europe, in the manufacture of hats. These skins have been largely substituted for those of the beaver, and were formerly carried to Europe by hundreds of thousands in a single year; they are now getting less plentiful, as well as in less demand. The fur is sometimes called raccoonda by the furriers.

NUTRITION, the complicated process by which the component particles of the various tissues, disintegrated and removed by the vital acts of the organism, are constantly replaced by new matter capable of continuing the functions necessary to life; a perpetual reproduction, in which every part produces a tissue like itself, whether bone, muscle, or nerve, healthy or morbid structure. This requires a due supply of proper food, its digestion, absorption of the nutritive portion, conversion into healthy blood, and its circulation over the system; the effete matter is removed by the organs of excretion, or modified by the purifying action of the lungs. These points have been sufficiently dwelt upon in the articles Absorption, Aliment, Blood, Chyle, Chyme, Circulation, Dietetics, and Digestion. Each tissue possesses an elective affinity for certain constituents of the blood, which it appropriates to its own use in the process of conversion into organized material. During the whole period of active life, a demand for nutrition is consequent on every exertion of the vital powers, especially of the muscular and nervous forces. Of the modes in which the substitution of new tissue takes place in the interstitial processes of nutrition, and in which the effete particles are removed in the interior of the system, our knowledge is as yet very imperfect. Though the formative power in healthy nutrition is not derived from the nervous system, it is often essentially modified by its influence. The character remaining the same, there may be considerable variation in the degree of activity of the nutritive processes, either in a part or the whole of the organism; in youth both the formative energy and the waste of the system are very active; as age advances, the former diminishes while the latter does not increase; local instances have been alluded to under Atrophy and Hypertrophy. In healthy nutrition, an adult person is maintained for years with the same general outline of form and feature, of size, and perhaps of weight, while at the same time the particles which compose the different parts of the body are undergoing a continual process of decay and renewal; and such is the exactness of the reproduction, that the body is one and the same through life. (See Bone, and Muscle.) Nutrition is actively performed in the process of reparation by which losses of substance from accident or disease are made good; this is most active in the lower animals, but limited in man to such parts as the bones, muscles, tendons, nerve fibres, vessels, epithelial tissues, and blood. Inflammation is not necessary to this process, as was generally believed until near the 2d half of the 19th century, though unfortunately attending most cases of wounds. Dr. Macartney was the first to show that the occurrence of inflammation is injurious to such reparation. There are many abnormal forms of the nutritive process, in which the tissues produced are different from those they ought to replace. In inflammation the natural relation between the blood and the tissues is disturbed; the formative activity is lessened, and the plastic components of the blood are increased and effused in a more or less unorganizable condition; the calibre of the vessels is changed, and the rate of the movement of the blood altered. Common and fatal forms of abnormal nutrition are seen in the imperfectly organized products of scrofula and the aplastic deposits of tubercle, and in the cancerous and fungous growths different in character from the normal tissues.

NUTTALL, Thomas, an American naturalist, born in Yorkshire, England, in 1786, died at Nutgrove, St. Helen's, Lancashire, Sept. 10, 1859. He learned the trade of a printer, and about the beginning of the present century came to the United States, where he soon engaged with ardor in the study of natural history. His researches led him to extensive travels, in the course of which he visited nearly all the states of the Union, explored the great lakes and the upper branches of the Mississippi, and in 1810 ascended the Missouri as far as the Mandan villages. In 1819 he explored the Arkansas river and the neighboring regions, and published an account of his travels, entitled "A Journal of Travels into the Arkansas Territory" (Philadelphia, 1821). He travelled also on the Pacific coast, and published several papers on the shells and plants of that region. From 1822 to 1834 he was professor of natural history in Harvard college, and curator of the botanical garden. Subsequently he returned to England, and spent the rest of his life on the estate of Nutgrove, which was bequeathed to him on condition that he should reside upon it. His principal works are: "Manual of the Ornithology of the United States and Canada" (2 vols. 12mo., Boston, 1834), and "The North American Sylva" (3 vols. royal 8vo., Philadelphia, 1849).

NUX VOMICA, the name of a drug consisting of the seeds of the *strychnos nux vomica* of botanists. This is a middle-sized tree of the East Indies, with a crooked trunk and smooth ash-colored bark, round, shining, smooth, ribbed leaves, small, greenish white flowers having hypocrateriform corollas with valvate lobes, 5 stamens with very short filaments, and a berry-like fruit of the size of a small apple, with a brittle shell and a white, gelatinous pulp, in which the discoidal seeds are lodged. It belongs to the natural order *loganiaceæ*; a more venomous order it would be difficult to name. The wood of the nux vomica tree is exceedingly bitter, particularly that of the root, which is used to cure intermittent fevers and the bite of venomous snakes. The pulp of the fruit seems to be innocent, and is eaten by birds. The seeds, however, are extremely poisonous, notwithstanding which they are employed in adding more intoxicating properties to spirituous liquors and to beer. The drug, according to Lindley, in large doses produces extraordinary rigidity and convulsive contraction of the muscles previous to death. In very small and repeated doses it promotes the appetite, assists the digestive process, increases the secretion of urine, and sometimes acts slightly upon the bowels. It was mainly introduced into practice by the homœopathists in many bilious and nervous headaches, chronic constipation, dyspepsia, &c. In regular practice nux vomica is used in the treatment of paralysis, nervous affections, dyspepsia, pyrosis, impotence, and dysentery. The seeds, rasped or filed, have been used to destroy dogs, cats, hares, foxes, rats, and vermin, under the vulgar name of ratsbane. The active principle, which is so poisonous and which is called strychnia, has been detected in several other species of the same genus of plants, and is mainly used in the regular medical practice.

NYANZA, a great lake of central Africa, discovered by Capt. Speke, Aug. 3, 1858. It is called Ukerewe by the natives, and was named Victoria by Capt. Speke, Nyanza the appellation by which it is now commonly known, being the native word for lake. Its S. extremity lies about 150 m. S. of the equator, and it was conjectured by Speke, from various accounts which he obtained from the natives, that it extended at least to lat. 1° N., in long. 31° or 32° E. Those whom he questioned supposed that it stretched to the end of the world. There was no means of ascertaining its breadth, for it was so broad that one could not see across it, and the only communication between the E. and W. shores was by occasional canoe parties coasting along the S. end. "The lake has the credit," says Speke, "of being very deep, which I cannot believe. It certainly bears the appearance of the temporary deposit of a vast flood overspreading a large flat surface, rather than the usual characteristics of a lake or inland sea, lying in deep hollows, or shut in, like the Tanganyika, by mountains. The islands about it are low hill tops, standing out like paps on the soft placid bosom of the waters, and are precisely similar to those among which I have been travelling; indeed, any part of the country inundated to the same extent would wear the same aspect. Its water appears, perhaps owing to the disturbing influence of the wind, of a dirty white color, but it is very good and sweet." At the S. end there are two islands of considerable size and a group of islets, which the discoverer named the Bengal archipelago. A small river enters it at this end, and on the W. shore it receives several streams from the mountain range which Speke calls the mountains of the Moon; while on the E. it is supposed to be fed by a large river which Dr. Krapf describes as flowing N. W. from the W. base of the snowy Kænia. Speke entertains no doubt that the Nyanza is the source of the Nile. Its elevation is about 3,738 feet above the sea, while that of the bed of the Nile in lat. 4° 44' N. was ascertained by Knoblecher to be 1,605 feet, a difference of elevation more than sufficient to account for the rapids in the upper part of the Nile, which have thus far baffled the efforts of all explorers to follow the stream to its source. For an exposition of Speke's reasons for this supposition, see "Blackwood's Magazine," Oct. 1859.—It is a remarkable fact that two lakes resembling Tanganyika and Nyanza, occupying the same relative positions, but some degrees too far south, were laid down on a map published at Amsterdam in the French edition of Dapper's "Description of Africa, Egypt, &c.," in 1686. The geographer Ptolemy also, in the 2d century A. D., mentions two lakes S. of the equator as the sources of the Nile. (See Nile.)

NYASSA, Niassi, Nyenyesi, Nyanji, or Maravi, a lake of central Africa, the extent of which is not precisely known. Its S. extremity lies in lat. 14° 23' S., long. 35° 30' E., or about 400 m. from Mozambique, and it is supposed to extend northward to lat. 10° S. It appears to be of great length, N. and S., in proportion to its breadth; and it has even been conjectured that it is a large river, the head stream of which passes near Cazembe's Town, at the S. end of Lake Tanganyika. According to the natives, it is so narrow at its southern opening that people on the opposite shores can call to each other. A short distance further N. there is a ferry between the villages of Msauka on the W. and Mjangga on the E., the boats making 2 or 3 trips a day. At the next ferry two days are occupied in crossing, the intervening night being passed on the island of Mount Mbaazuru. Between Zenga on the W. shore and Gnombo on the E., still further N., the passage takes from sunrise to sunset, and is never attempted except in a perfect calm. Above this, at a part of the lake where it bends toward the W. and increases greatly in width, the people of the opposite shores have no communication with each other. From the S. extremity of the lake flows the river Shire, which unites with the Zambesi about 60 m. from the sea. The E. shore is inhabited by the Wajania or Wanguru, who occupy an extensive tract of country, and the W. shore by the Wamaravi (people of Maravi), Wanianja, Wakamdunda, Wamuera, and Wakumbodo.—The lake was first laid down on Portuguese maps as early as 1546, but no precise information concerning its position was obtained until the time of Manoel Godinho (1663), who learned in India from a Portuguese traveller that it communicated with the Zambesi through a river which he called Zachaf. Gamitto (1831) states its width to be 33 English miles, but the current was so strong that boats were 2 or 3 days in crossing, and it was so shallow that they were propelled with poles. Dr. Livingstone, in his "Missionary Travels in South Africa," speaks of meeting a Senhor Candido at Tete on the Zambesi river, who had visited the lake and crossed it at a narrow part, being 36 hours on the passage. His canoe was pushed by poles all the way. The surrounding country he described as a level plain covered with grass and destitute of wood. He regarded the lake as no more than an expansion of the river Nyassa, which comes from the N., and issuing at the S. end of the lake passes into the sea on the E. coast under another name. This may be the river Ruvuma, whose mouth is near Cape Delgado, and which Dr. Krapf was told came from a large inland lake. Dr. Livingstone has since reached the Nyassa by ascending the Zambesi and Shire, and is now (1861) engaged in the exploration of the surrounding regions. He has found a rich cotton-growing country in the vicinity, which seems to be accessible by the river. From the point where the Shire issued the lake appeared to stretch N. N. W., and in the distance was seen an island, which may be the mountain above alluded to. About the first months of 1860 the lake was also reached by Dr. Albrecht Roscher of Hamburg, who was attacked by two of the natives on the E. shore and killed by poisoned arrows. The news was carried to Zanzibar by his servants.

NYBORG, a fortified town of the island of Fünen, Denmark, on the Great Belt; pop. in 1851, 3,059. It is defended by a strong citadel, and is the place where the sound dues were paid by vessels passing through the Great Belt. It contains ship building yards.

NYCTALOPIA (Gr. νύξ, night, α privative, and ὤψ, the eye), night blindness. Nyctalopia has been used in different acceptations by various authors, sometimes as signifying blindness occurring only at night, at others as occurring in the day; the former, or night blindness, is now the general and accepted signification among the best medical authorities. The disease varies in intensity; in mild and recent cases there being only a greater or less indistinctness of vision after sunset, while in others the patient is entirely unable to distinguish objects by the light of the moon or by artificial light, or even to see a lighted candle placed directly before the eyes. During the day the pupils move naturally, but after nightfall they remain usually dilated and sluggish or motionless. In old cases they are occasionally observed to be contracted. The disease is said to be sometimes congenital and hereditary; more commonly it is produced by continued exposure to the bright light of the sun during the day, particularly when the strength is impaired by over-fatigue, watching, and a faulty diet. It is of common occurrence in warm and tropical climates, particularly among strangers from a more temperate region. It sometimes seems to be produced by the reflection from snow. Dr. Guthrie ("Edinburgh Medical Comment," decade ii., vol. ix., p. 268) says: "I was lately desired to give an opinion on a curious phenomenon that happened last war in Finland, where a Russian detachment, ordered to attack a Swedish post during a light night in spring, had like to have mistaken one another for enemies, and occasioned bloodshed, owing to some hundreds in the column being blind after sunset. The complaint seized the soldiers in the spring, when the nights, from the short absence of the sun and the strong reflection of the snows, must have been very fatiguing to the eyes, at a period of much martial vigil and alarm; surprises on both sides being then very frequent, more especially nocturnal." Avoidance of exposure to excessive light is in general all that is necessary to obtain a cure. If the disease be accompanied by any gastric or other derangement, this should of course be attended to. When the complaint has proved obstinate, a succession of blisters to the temples has been found beneficial.—The term hemeralopia, day blindness, has been applied to a defect of vision the opposite to nyctalopia. Beyond the photophobia common to those who have been long habituated to darkness, to albinos, and to children laboring under strumous ophthalmia, this has no real existence.

NYERUP, Nasmus, a Danish antiquary, born in Fünen in 1759, died June 28, 1829. He was educated at Copenhagen, where in 1796 he became professor of literary history and university librarian. He wrote several valuable bibliographical works, but his reputation rests chiefly on his antiquarian compilations, of which the most noteworthy is his "Historical and Statistical Exhibition of the Condition of Denmark and Norway in Ancient and Modern Times" (2 vols., 1802–'6); and more especially on his numerous writings in regard to the ancient Danish language and literature.

NYMPH. See Chrysalis.

NYMPHÆA. See Cos.

NYMPHS, in Greek and Roman mythology, inferior female divinities, personifying or presiding over various departments of nature. The Oceanids, daughters of Oceanus, and the Nereids, daughters of Nereus, were salt water nymphs, the latter dwelling in the Mediterranean, and especially in the Ægean sea. The naiads were nymphs of fountains and other fresh waters, those presiding over lakes being also called limniads, and those over rivers, potamids. The nymphs of mountains and grottos were called oreads or orestiads; of forests and groves, dryads and hamadryads; and of vales, glens, and meadows, napææ and leimoniads. They were also named from certain races or localities with which they were associated, as Nysiads, Diclonids, Lemniæ, &c.; and were subdivided into still other classes, with names and attributes almost innumerable. Sacrifices were offered to the nymphs of such productions of nature as abounded in their several haunts. They were not immortal, though always youthful, and often perished with the objects of their care; or the object was said to languish and die when the guardian nymph forsook it. The demigods and heroes of antiquity were fabled to have been nourished by nymphs, and many wise men to have been inspired and instructed by them; and in general they watched with solicitude over the fate of mortals. They participated in the councils of the gods on Olympus, and often appear in company with the higher divinities, as for example with Apollo, Bacchus, Venus, Pan and Silenus, and with Diana. The poets and artists of antiquity so represented them, giving them always youth, a negligent and wild beauty, light flowing robes, and long floating hair.

O

O, the 15th letter and the 4th vowel of the English alphabet. It is pronounced by pointing the lips and forming with them an opening resembling the letter itself. Phonetically it occupies a position between A and U, the sound passing gradually into that of the former letter in proportion as the lips are more opened, and into that of the latter as proportion as the opening is contracted. With both these it is sometimes interchanged. The English *one*, *two*, *stone*, are pronounced in Scotland *ane*, *twa*, *stane*; and in the words *done*, *won*, *come*, *some*, *o* is written where *u* is pronounced. O and U appear indeed to have had a common origin, and it has been supposed that the old Greek alphabet did not contain *upsilon* (υ), while the Etruscan had U but not O; hence the frequent occurrence of O in Greek and of U in Latin. O is also interchanged with the Greek and Latin long *e*, equivalent to the English *a* (Gr. *κηρ*, Lat. *cor*); with *ou* (French *tout*, Lat. *totus*); *uo* (especially in Italian, as in *cuore*, Lat. *cor*); *eu* (French *lieu*, Lat. *locus*); *au* (French *or*, Lat. *aurum*); *oa* (the English *boat* having probably been originally pronounced *bo-at*, Ger. *Boot*); *ue* (Span. *bueno*, Lat. *bonus*); *ea* (*cleave*, *clove*); *i* (*write*, *wrote*); *ei*, pronounced as the English long *i* (Ger. *nein*, Eng. *no*); *ie*, pronounced as the English *ee* (Ger. *niemand*, Eng. *none*); and short *e* (Lat. *velle*, *volo*; *vermis*, Eng. *worm*). In English O has 4 sounds: long, as in *note*; short, as in *not*; obscure, as in *occur*; like *oo*, as in *move*, *wolf*. There are also some exceptional cases in which it takes the sound of short *u*, as instanced above; of broad *a*, as in *lord*; and of short *i*, as in *women*. It forms the following diphthongs: *oa*, sometimes equivalent to long *o*, as in *coal*, or broad *a*, as in *broad*; *oe*, sounded like long *o* in *foe*, *oo* in *canoe*, and long *e* in *fœtus*; *oi*, having its proper sound as in *voice*; *oo*, long as in *boon*, short as in *good*, like long *o* as in *floor*, or like short *u* as in *flood*; *ou*, as in *house*, or like short *u* in *double*, *oo* in *soup*, *could*, long *o* in *though*, short *o* in *hough*, and broad *a* in *ought*; *ow*, sounded like *ou*; and *oy*, like *oi*. The use of O is next in frequency to that of A. It is employed particularly to express admiration, warning, compassion, and entreaty, and occurs as an interjection in all languages.—In inscriptions, O. stands for *optimus*. As a prefix to Irish names, it signifies "son of;" thus, O'Connor is equivalent to son of Connor. In freemasonry it denotes Orient; in French geography, *ouest*, west; in German geography, *Ost*, east. In Greek numeration it stood for 70, and in the middle Latin for 11, or with a dash over it, $\bar{\text{O}}$, for 11,000.

OAJACA, or Oaxaca, a state of the Mexican confederation, bounded N. E. by Vera Cruz, E. by the territory of Tehuantepec, S. by the Pacific, W. by Guerrero, and N. W. by Puebla, and extending from lat. 15° 40′ to 18° 30′ N., and from long. 95° to 99° W.; area, 34,948 sq. m.; pop. 531,962. There are several small bays upon the coast. The principal river is the Rio Verde, which waters the extensive valley of Oajaca. The surface is uneven and mountainous, the state being traversed from N. W. to S. E. by the cordillera of Anahuac. It is one of the most beautiful districts of Mexico. There are mines of gold, silver, and lead; and all the rivers have gold in their sands. In the mountainous districts, and more especially in the spacious valleys which are situated from 2,500 to 6,000 feet above the level of the sea, the soil and climate are equal to any on the globe. The productions are wheat, indigo, cochineal, cotton, sugar, honey, cacao, plantains, and other fruits. The inhabitants are chiefly Indians. The number of schools is about 700, attended by upward of 30,000 pupils; and the number of young persons attending colleges is about 200. "The intendancy of Oajaca," says Humboldt, "is one of the most delightful countries in this part of the globe. The beauty and salubrity of the climate, the fertility of the soil, and the richness and variety of its productions, all minister to the prosperity of the inhabitants; and this province has accordingly been from the remotest period the centre of an advanced civilization."—Oajaca, the capital of the above described state, is situated on the left bank of the Rio Verde, 200 m. S. S. E. from Mexico, on the site of the ancient Huaxyacac; pop. about 25,000. The town is built in an oblong form, nearly 2 m. by 1½ in extent, including the suburbs, which are full of gardens and plantations of nopal, on which tree the cochineal insect subsists. The streets are wide and well paved; the houses are of two stories and built of freestone. There are several handsome and richly decorated churches and monasteries, a town house, a bishop's residence, and manufactories of silk, cotton, sugar, and chocolate.

OAK (*quercus*, Linn.), the name of a noble group of plants of the natural order *cupuliferæ*, embracing about 150 species, and confined for the most part to the northern regions of the globe. Scarcely known in the southern hemisphere, they reach their most southern limits in the islands of the Indian archipelago, and occur on the eastern shores of Asia and on the Himalaya mountains. In North America they range from Canada, through California and Mexico, to the isthmus of Darien. Each section of the globe where they appear has species of its own, those of the East being seen nowhere else, and the numerous North American kinds being peculiar to that country. The oaks may all be considered trees, though varying greatly in size; they are chiefly large, the leaves alternately placed upon the branches, falling off at the end of summer, or else persistent and even evergreen, conduplicate in the leaf bud, the scales imbricated. The leaves vary greatly in different species, from the lanceolate, cordate, entire, lobed, and sinuate-shaped, to even the pinnatifid forms. In all the species the flowers are inconspicuous, without corolla, and generally appear before the foliage expands; they are monœcious, the male flowers in long tassels or aments of jagged scales, at the base of each one of which are placed 5 to 20 stamens; the female flowers are usually bud-shaped, their ovaries enclosed in an involucre surrounded by a toothed calyx; they contain from one to several ovules, only one of which arrives at maturity. The fruit is a one-celled nut, wholly or partially enclosed in a cup, called the cupule, and this with the enclosed nut is termed the acorn. Structurally the cupule is only a modified involucre, composed of a great many small bracts growing together at their edges and more or less free at their tips, which, when extended to an attenuated length, gives the cupule a mossy appearance, a character belonging to several species.—The oaks of Europe, northern Asia, and Barbary have been arranged into 8 groups; and we shall in this article adopt a similar geographical view of the most prominent species. Belonging to the first, or forest oaks, is the common oak (*Q. pedunculata*, Linn.), a tree from 50 to 100 feet in height, with spreading tortuous branches and spray, and with a head broader than it is high, especially if the tree stands singly and alone. The leaves are deciduous, oblong, smooth, dilated upward, sinuses rather acute, lobes obtuse; the acorn borne upon a long peduncle, its nut oblong. Many curious varieties are known in Europe under cultivation. This is the commonest oak in England, and is considered the true British oak, whose timber is best suited for naval purposes, on account of its durability and hardness; there are however other species equally valuable. The length of the footstalk which supports the acorn is a most observable and remarkable fact, the more especially as the footstalk of the leaf is as observably short. The sessile-flowered oak (*Q. sessiliflora*, Salisbury) is the other British species, whose timber has proved remarkable for durability, as is known from its use in the construction of some of the oldest buildings in England. In size, the species compares favorably with the former; and indeed, according to most authors and observers, there is little or no difference in magnitude and general appearance between the entire full-grown trees of both species. Its wood so much resembles chestnut, that the trivial name of the chestnut oak has been applied to it; and various other names have obtained in different portions of Europe, as indicative of variations or fancied resemblances of parts of the tree, or of its wood. The leaves of the sessile-flowered oak are borne upon long petioles; they are deciduous, oblong, smooth, with opposite sinuses rather acutely indented, though the lobes are obtuse; the fruit is sessile and the nut oblong. A third species, native of southern Europe, is the *Q. pubescens* (Willd.), with smaller leaves, which are often very woolly on the under side, the lobes much sinuated. It is a majestic tree, resembling the sessile-fruited oak, but having an inferior kind of timber. The tauzin of Persoon (*Q. Pyrenaica*, Willd.) is a small, scrubby tree, growing on poor, sandy soil in southern France, having grayish-colored leaves and wood of little value.—The evergreen oaks are represented in Europe by the holm oak (*Q. ilex*, Linn.), a large shrub or low middle-sized tree, according to soil and situation, native of southern Europe, northern Africa, Cochin China, and other parts of Asia. It has been long cultivated in British gardens for its beauty. The bark of its trunk is even; its leaves ovate, oblong, coriaceous, entire or serrated, hoary beneath; the acorns ovate and borne upon short stalks, ripening the 2d year, but bitter and unfit for food. It prefers the neighborhood of the sea, growing singly or in clumps in a wild state. Its wood is very hard, tough, heavy, and of excellent quality, where its weight is not an objection. The sweet-acorn oak (*Q. gramuntia*, Linn.) is also an evergreen species, with elliptical, coriaceous, entire or serrated, very obtuse leaves, which are downy beneath; the acorns cylindrical, elongated, edible, and when in perfection as good as chestnuts. The cork tree (*Q. suber*, Linn.) in form is said to be much more beautiful than the common evergreen oak, and in districts suited to it attains a great height. It is found throughout all the warm parts of Spain, and most abundantly in Catalonia and Valencia. It is this species that furnishes the cork of commerce, which is a soft, spongy growth of its bark. The kermes oak, producing the "scarlet grain," is the *Q. coccifera* of Linnæus, a low bushy shrub, resembling a holly in miniature, with elliptical, oblong, rigid leaves, which are smooth on both sides, having spreading, bristly, spinous teeth, the fruit borne upon peduncles, the nut ovate, the cup with spreading, pointed, somewhat recurved scales. It occurs in S. Europe and the Levant, flowering in May. The value of the insects which feed upon the juices of its bark has been known among the eastern nations from the earliest ages, but since the discovery of America the cochineal has greatly supplanted the kermes as an article for dyeing.—The moss-cupped oaks are peculiar in their deeply pinnatifid leaves, the long narrow scales of their cups, and their equally long, deciduous stipules. The Turkey oak (*Q. cerris*, Linn.) is exceedingly common all over Europe, where it seems to form some of the finest specimens. Its leaves are deciduous on very short footstalks, oblong, deeply and unequally pinnatifid, hairy beneath, the lobes lanceolate, acute, somewhat angular, stipules longer than the footstalks, and cup hemispherical with long, loose, hairy scales. Under cultivation it shows a great tendency to sport, and many curious varieties are constantly occurring. The abundance of the silver grain in the wood gives it a beautiful mottled appearance, and when grown under favorable circumstances the timber is considered equal to that of any other species. The vallonia oak (*Q. ægilops*, Willd.) yields the acorns called vellani or vallonia in commerce, used extensively for tanning. This tree is indigenous in the islands of the archipelago and throughout Greece, and grows to a large size there. Its leaves are ovate oblong, with bristle-pointed, tooth-like lobes, hoary beneath; the cup of the acorn is very large, hemispherical, with lanceolate, elongated, spreading scales; nut large, short, and a little hollow at the top. The acorns are in great demand for tanning, being said to contain more tannin in a given bulk of substance than any other vegetable. The more substance there is in the husk or cup, the better. According to Miller, the *Q. ægilops* is one of the most splendid species, and can be recommended to all lovers of fine trees.—Asia Minor has several species of oaks, of which perhaps one of the most important is the gall oak (*Q. infectoria*, Willd.), a very common species, whose branches are attacked by a kind of *cynips*, causing the formation of the gall nuts of commerce. The leaves of this species are ovate oblong, very smooth on both sides, somewhat sinuated, deciduous; the acorn sessile, its cup tessellated and nut elongated. The royal oak (*Q. regia*) of Koordistan is said to be a noble species, with very large, heart-shaped, wavy leaves, having coarse, unequal serratures, green and shining on both sides, each of the lobes terminated by a conspicuous bristle. From the manna oak (*Q. mannifera*) the Koords obtain a sweet mucilaginous substance by steeping the branches and leaves in boiling water, at the hottest season of the year, and afterward evaporating the water. This substance, made into cakes, is sold in the market as the "sweetmeat of heaven."—The oaks of the Himalaya, according to travellers, are abundant, and Dr. Wallich obtained many distinct species. In his *Plantæ Asiaticæ Rariores* he describes a magnificent species whose timber is greatly prized by the natives; its trunk frequently attains 80 to 100 feet, and its girth at 6 feet from the ground is 14 to 18 feet, and sometimes of even larger dimensions. It is the marking-nut oak (*Q. semecarpifolia*), with obovate, obtuse, coriaceous, entire leaves, heart-shaped at base and downy beneath; acorns solitary or in pairs, depressed at the point, and about twice as long as the shallow, scaly cups. Another species, very like the evergreen oak of Europe, is the Himalayan ilex (*Q. incana*), said to be a beautiful tree. The woolly-leaved Nepaul oak (*Q. lanata*) is one of the handsomest yet discovered, and is found growing wild with the tree rhododendron of these mountains. A beautiful Chinese species in mountainous places is the *Q. Chinensis*, with sessile, globose acorns, whose cups are composed of hairy lanceolate scales, the outer of which are reflexed and longer than the nut.—Several species of oaks have been noticed in Java, Sumatra, and the Molucca islands, having entire, lanceolate, broad-lanceolate, ovate, or oval-oblong, acuminate, or narrow-lanceolate leaves, and acorns of curious forms and size.—The North American oaks have received the attention of the Michaux, father and son. According to Mr G. B. Emerson, in his "Report on the Trees and Shrubs of Massachusetts" (Boston, 1846), the most natural arrangement of them seems to be that adopted by the elder Michaux. He divided them into two sections according to the character of the leaves; the first comprising those species whose leaves are destitute of flexible points or bristles; the second, those with leaves whose segments are mucronate, or terminate in bristles. A very important difference is also observed in the length of time required for the blossom to bring its fruit to maturity. Most of the oaks of Europe blossom in the spring, and mature their fruit the same season; and this is the case with those American oaks which belong to the first section. In those included in the second, on the contrary, the fertile blossom makes its appearance in the axil of the leaves on the new shoot, and remains a whole year without change. In the spring of the 2d year, after the new shoot has been produced, and new barren and fertile flowers are developed, it is, probably for the first time, fecundated, and then begins to increase and bring its fruit to maturity 18 months after its first appearance. In this case the fruit seems not to be axillary, as the leaves of the previous year, in whose axils it grew, have fallen. Most of the trees which belong to the first section possess greater value, on account of the excellent properties of their timber, than those of the second. 1. Of the first section, the white oak (*Q. alba*, Linn.) sometimes reaches to the height of 60 or 80 feet or more. Its limbs are very large, and diverge at a very large but not uniform angle from a broad, gnarled, massive juncture. The bark on the trunk is of a very light ash color, whence it is universally known, though always called "white oak." Its leaves are on short petioles 4 to 6 inches long and 2 to 3 wide, pubescent beneath when young, but smooth when old; above of a light shining green color, below paler or glaucous, and almost coriaceous in substance; deeply divided into lobes, about 3 or 4 on each side, each of which is oblong, rounded or obtuse, rarely subdivided. In different localities the leaves widely vary, becoming sometimes very narrow. The flowers are upon a very long slender thread, each calyx containing 4 to 7 stamens; the acorns grow single or in pairs fixed to the year's shoots; usually they are about an inch long, ovoid, oblong in a shallow and flattened cup. The nut is of a pleasant sweet taste, and when roasted agreeable to the palate. This species has a wide distribution through the United States, and is a well known and valuable tree; it furnishes the best ship timber, and is used in the making of wheels, casks, hoops, &c. Its bark is valuable to the tanner, and its wood, when used for fuel or burned for charcoal, is highly prized. It can be recommended for an ornamental tree on account of its picturesque outline and general contour, especially after it has attained an old age. The over-cup white oak (*Q. macrocarpa*, Mx.) is a fine erect tree of medium height, irregularly branched, and with luxuriant foliage. Its leaves, on short footstalks, 6 to 7 inches long and 3 to 4 inches wide, are pear-shaped in their general outline, deeply and irregularly sinuate-toothed, smooth and dark green above, much lighter beneath; the acorns are very large, their nuts enclosed for more than half their length in a cup covered with very prominent scales, and bordered by a conspicuous fringe of long, flexile threads. This species is likewise called in some districts the pin oak, on account of its wood being used in making pins or treenails, possessing stiffness and solidity, and a similarity to that of the white oak, but preferred for fuel. It ranges along rivers and in dry woods from western New England to Wisconsin, Kentucky, and southwestward. The post oak (*Q. obtusiloba*, Mx.) is a small tree with very durable wood, resembling that of the white oak; its leaves are stiff, coriaceous, divided at one third their length by a deep sinus on each side; the upper portion is of three broad, obtuse, divergent lobes; the acorns are nearly sessile on very short footstalks; the nut, set in a grayish, broad cup, invested with numerous very smooth, close scales, is small and sweet. This tree is used for posts, whence its common name; its timber is likewise employed for knees in ship building, and much esteemed for fuel; for durability it is considered inferior only to the live oak, and when of sufficient size is valued for ship timber. Its range of growth is from the coast of Massachusetts to Wisconsin and southward. The swamp white oak (*Q. bicolor*, Willd.) is considered by Prof. Gray to be a variety of the swamp chestnut oak (*Q. prinus*, Linn.), growing throughout the United States in low, moist grounds. In warm and sheltered situations at the north, it is a beautiful and neat tree; but exposed to a north or east wind, it becomes ragged and homely. Its leaves are unequally and deeply sinuate-toothed, bright green above, and whitish downy beneath; the acorns are an inch or more long, the cup with pointed and sometimes awned scales, which form a fringed margin; the nut has a sweet kernel. The wood is of a brownish color, heavy, compact, and fine-grained, possessing great strength and elasticity; it is sometimes preferred by boat builders to that of the white oak. The yellow chestnut oak (*Q. castanea*, Willd.) is a middle-sized tree in the rich woods from western New England to Wisconsin, and southward. Its leaves are shaped more like those of the chestnut tree than any other of the oaks; it has a small ovoid or oblong nut in a hemispherical cup, with thin, small, appressed scales. The dwarf chestnut oak (*Q. prinoides*, Willd.) seldom attains a greater height of stem than 5 feet, and frequently rises no more than 2 to 3 feet. It is a pretty species, with small acorns, which are usually produced in abundance, and which are eaten with avidity by wild animals. Its bark is very bitter, and might be used for tanning by employing the branches and twigs. It thrives in sandy soils from New England and New York southward. 2. Of the second section, the leaves of which are mucronate, fruit sessile, and fructification biennial, may be cited the black oak (*Q. tinctoria*, Bartram), distinguished from all other species by the rich yellow or orange color of its inner bark, constituting the quercitron of the dyers, and by the black color of the external bark upon the lower part of the trunk of the tree. Its wood is much used as a substitute for white oak, being second to it in quality; its grain is close and rather fine, and possesses great strength. The range of this species seems to be extensive throughout the United States. The scarlet oak (*Q. coccinea*, Wangenheim) is a large tree, whose long-petioled, shining leaves, turning bright scarlet in autumn, afford the trivial name it bears. It may be distinguished from the black oak by its more deeply cut foliage, and by the brighter and lighter hue of the leaves. It abounds in the eastern part of the state of Massachusetts; and in the middle, southern, and western states it forms one of the tallest species of the oak family. Its wood is much employed for fuel; but its bark, being comparatively thin and not abounding in tannin, is less valuable than that of the preceding species. The red oak (*Q. rubra*, Linn.) is the most northern species of this section. It is common in all the New England, middle, and southern states as far as Georgia, and on the western slopes of the Alleghanies. It is a good-sized tree, with reddish, very porous, and coarse-grained wood, of little value as timber. It flourishes in all situations, and grows with rapidity; its foliage and trunk are very beautiful, and its dimensions often extraordinary. The annual shoots or suckers from the stump sometimes grow 6 feet high; and its facility in growing from the acorns might recommend it for covering poor soils. The pin oak or swamp Spanish oak (*Q. palustris*, Du Roi) is a very handsome middle-sized tree, with a light elegant foliage, the sinuses of its leaves reaching ⅔ of the way to the midrib; the acorn is globular, scarcely half an inch long. It may be found along streams in low grounds from southern New York to Wisconsin. Its timber is considered better than that of the red oak. The bear oak (*Q. ilicifolia*, Willd.), better known as scrub oak, is a small species 6 to 8 feet high, growing on rocky hills and gravelly knolls from New England to Ohio and western Virginia. Its acorns are ovoid, of a deep orange color at base as well as inside, and are abundantly produced; they are devoured with avidity by bears, which circumstance affords one of the trivial names applied to the species. The Spanish oak (*Q. falcata*, Mx.) is either a small or a large tree, from 30 to 80 feet high, growing upon dry and sandy soil with an extremely variable foliage, and to be met with from New Jersey and Pennsylvania southward. Its wood is similar to that of the red oak, and its timber is of little value. From Virginia and southward to Florida is found the water oak (*Q. aquatica*, Catesby), a tree 40 feet high, with glabrous and shining leaves, obovate-spatulate or narrowly wedge-shaped in outline, with long, tapering bases; the acorns globular, the cup saucer-shaped and hemispherical, the scales fine and close. Its trunk is clad in a smooth bark, which in the oldest trees is slightly furrowed; the timber is very tough, but less durable than that of some other species. The black jack or barren oak (*Q. nigra*, Linn.) has similar leaves, but they are more broadly wedge-shaped, rounded or cordate at base, slightly 3-lobed at the summit, shining above, rusty pubescent beneath, 4 to 9 inches long; the acorn ovoid, short, the cup top-shaped, coarse-scaly, covering half the nut. It occurs in dry barrens from Long island, N. Y., to Illinois and southward; its trunk is 8 to 20 feet high, with a pretty close timber, which is of little use in the arts because generally decayed at the heart, and too easily rotting on exposure to the air; its principal use is for fuel.—The evergreen or live oaks are represented in the southern states by the live oak (*Q. virens*, Aiton), occurring on the coast of Virginia, and increasing in value as it is found more southward. Its leaves are obtuse, oblong or elliptical, hoary beneath; the acorn oblong, with a top-shaped cup. This species sometimes grows to a great size; though usually it does not afford large timber, its wide and branching summit makes valuable knees for the ship yard; the bark, which is excellent for tanning, is only incidentally employed; the acorns are said to be remarkably sweet. The upland willow oak (*Q. cinerea*, Mx.) is a small tree with acute lance-oblong leaves, and of a white downy hue beneath; its acorn is globular, the cup saucer-shaped. It occurs in pine barrens in Virginia and southward. It is considered a very inferior sort of tree, and not even of much value for fuel. The true willow oaks, or those having deciduous, entire, narrow leaves, are represented by the willow oak (*Q. phellos*, Linn.), a tree 30 to 50 feet high, with remarkable willow-like leaves, which are 3 to 4 inches long, linear lanceolate, narrowed to both ends, smooth, and light green; the acorn globular with a saucer-shaped cup. This species grows in sandy low woods, ranging from Long island and New Jersey to Kentucky and southward. Its timber is of small value, from the coarseness of its grain and the openness of the pores. The shingle or laurel oak (*Q. imbricaria*, Mx.) is a tree 30 to 50 feet high, growing upon barrens and woodlands in New Jersey to Wisconsin and southward. Its wood is used in the manufacture of shingles, which gives the name to the species.—The Mexican species are said to be very numerous, and to form highly ornamental trees. Forests of the sharp-leaved oak (*Q. acutifolia*, Willd.) occur on the road from Acapulco to Mexico. It is one of the largest species of New Spain, and has a dense head of innumerable branches. The leaves, 5 to 6 inches long and 1 to 2 inches wide, have longish footstalks, are lobed at base, but taper to a very acute point, with coarse pointed teeth, smooth above, covered beneath with a brown woolly tomentum; the acorns are scarcely bigger than peas, and the cups nearly cover the nuts. It is remarkable for beauty and singularity of foliage, as well as for grandeur and nobleness of general aspect. The ironwood oak (*Q. sideroxyla*, Humboldt and Bonpland) is a lofty tree, a native of the temperate regions of Mexico at an elevation of 8,600 feet. Its wood is very valuable, hard and compact, takes a fine polish, and endures permanently when immersed in water. The blue-leaved oak (*Q. glaucescens*, H. and B.) forms forests at an elevation of more than 2,800 feet above the sea, in the warm parts of Mexico. Its wood is of great value, and employed for making charcoal. The Mexican oak (*Q. Mexicana*, H. and B.) is a very common and small tree, with white wood, much sought for the same purpose as the last. The laurel oak (*Q. laurina*, H. and B.) is a tall tree, with long, leathery leaves, oval-lanceolate, sharply acuminate, quite glabrous; it is a native of the temperate regions; its wood is very hard and in great esteem. Mr. Loudon, in his *Arboretum Britannicum*, vol. iii., gives 36 species with descriptions, as taken from the best authorities on this branch of the subject.—The Californian species of oaks have been examined by Prof. Torrey, and his descriptions can be found in the various reports of the United States exploring expeditions. Some of these had been previously noticed by the late Prof. Nuttall. Of these, the western oak (*Q. Garryana*, Hooker) is a tree 90 to 100 feet high, and its branches are proportionate to its altitude of stem; its wood is of remarkable whiteness, hard and fine-grained, and well suited to every kind of construction for which the white oak is employed, and to which natural section of the oaks it indeed belongs. Its acorns are sweet and agreeable, so much so that they are gathered and stored by the aborigines for food. This species had been found by Nuttall at the Dalles above the falls of the Columbia, and at Santa Rosa in California by other collectors. The holly-leaved oak (*Q. aquifolia*, Nee) is abundantly dispersed over the plain on which Santa Barbara is situated, forming a conspicuous feature in this portion of the western world. It is a tree about 40 or 50 feet high, with leaves which are evergreen and nearly as prickly as those of the holly; its wood is hard, brittle, and reddish, and is used chiefly for fuel. The dense-flowered oak (*Q. densiflora*, Hooker) is a remarkable tree, with entire evergreen leaves of lanceolate outline and pennate nerves, which so much resembles the chestnut even in the nut of the acorn, that the cup seems to be the only distinguishing character. It is a native of Upper California. The *Q. Hindsii* of Bentham is a tall species having a trunk of 3 feet diameter, and common in the valley of the Sacramento; and Emory's oak (*Q. Emoryi*, Torrey), a small-leaved species, is found at San Francisco mountain and the Aztec pass of New Mexico. For further references to these and to other Californian species, see "Reports on the Pacific Railroad Route," &c., senate document of 33d congress, 1856, vol. iv., p. 138 *et seq.*—Some remarkably singular forms of North American oaks have been known to botanists. The Bartram oak (*Q. heterophylla*, Mx.), which was detected in a field belonging to Mr. Bartram's farm, and there only, but is now extinct, is considered by Prof. Gray as possibly a hybrid between *Q. phellos* and *Q. tinctoria;* and Lea's oak (*Q. Leana*, Nuttall), of which single trees occurred to the late Mr. T. G. Lea near Cincinnati, after whom it was named, and near Augusta, Ill., is thought by the same author to be a hybrid between *Q. imbricaria* and *Q. tinctoria*, or possibly *Q. nigra*. Admitting the probability of these instances being in reality hybrids occurring from fortuitous self-crossing or hybridization, which the rareness of their occurrence seems to warrant, it is a little remarkable that other instances have not been known in districts of country where several distinct species grow together in the same range of forest, or under cultivation by artificial planting.—The value of the oak is too well known for much detail here; and all the superior excellence of the timber of species natural to one region of the globe can be found in other species occurring in regions wide apart and diversely situated. The astringent properties of the leaves of *Q. falcata* cause them to be employed externally in cases of gangrene. This astringency is found in different degrees in all the oaks, and they have been used medicinally as febrifuges, tonics, and stomachics. Gallic and quercitannic acids have the power of guarding animal and vegetable fibres from decay; these are present in the bark of the oaks, and hence their value to the tanner. The acorns of many species afford valuable food not only for animals but for man.

OAKLAND, a S. E. co. of Mich., drained by branches of Clinton and Huron rivers and other streams; area, 900 sq. m.; pop. in 1860, 38,274. The surface is undulating, and in the N. hilly, and the soil is generally fertile and well cultivated. About 50 small lakes are scattered over the surface. The productions in 1850 were 586,346 bushels of wheat, 488,818 of Indian corn, 272,382 of oats, 205,527 of potatoes, 53,206 tons of hay, and 293,981 lbs. of wool. There were 28 grist mills, 13 saw mills, 12 iron founderies, 33 churches, and 10,457 pupils attending public schools. The Detroit and Milwaukee railroad passes through the capital, Pontiac.

OAKUM, the threads of hempen ropes picked to pieces, to be used when mixed with pitch for calking the seams of vessels. Until recently old men, women, and children were employed to pick oakum; but this is now chiefly done by machinery. The rope or junk is old rigging and cables bought up for this purpose. It is first cut by a powerful knife into short lengths, and these are thoroughly steamed to dissolve out the tar. The strands being then pulled apart, they are spread in the sun to dry. After this they are torn in pieces and cleansed of dust in carding machines, a succession of which are used, until the oakum is obtained in clean light fibres. Saffron is often employed to give it a fine yellowish color. It is packed in bales for sale, and when used by the calker is rolled by the hand into "slivers," preparatory to driving it into the seams. Various unsuccessful attempts have been made to twist it into slivers by machinery.

OASIS, a name given by the ancients to the fertile spots found in the Libyan desert, and now become a general term for those situated in any desert. It is derived from the Coptic word *ouah*, a resting place, because there the caravans halted in their journeys between eastern and western Africa. Anciently they were supposed to be islands, rising up from an ocean of sand, although, on the contrary, they are depressions in the midst of a surrounding table-land resting on a bed of limestone, the precipitous sides of which encircle the hollow plain. In the centre of this valley is a stratum of sand and clay, which retains the water flowing into it from the surrounding cliffs. Here upon the cultivated portion grow palms, dates, and various kinds of fruits, beside rice, barley, wheat, and millet. These oases were never permanently occupied until after the conquest of Egypt by the Persians. Under the Ptolemies and the Cæsars they were occupied by the Greeks and the Romans; later they were used as places of refuge from persecution by the Christians, and subsequently by heretics. In the Sahara desert 32 of these oases are enumerated, of which 20 are inhabited. The most celebrated are the following, which are situated in the Libyan desert: 1. Ammonium, the modern El-Siwah, the most remote from the Nile, in lat. 29° N., long. 26° E., is the richest in historic associations. Here are the ruins of the temple of Ammon, and the supposed "Fountain of the Sun," whose waters were warm in the morning and evening and cold at mid-day, which excited the wonder of Herodotus. This oasis is 6 m. in length and 3 in breadth, and is remarkable for the productiveness of the soil, which is strongly impregnated with salt. It has now several towns, the principal of which is Kibir, and its inhabitants are subjects of Egypt. 2. Oasis Minor, the modern El-Bahryeh, is situated S. E. of El-Siwah in lat. 28° 30′ N. It contains temples and tombs belonging to the era of the Ptolemies. It was also under the government of the Romans, and was then distinguished for its wheat; but now it produces principally fruits, such as dates, olives, and pomegranates. 3. Oasis Trinytheos, the modern El-Dakhleh, is situated in lat. 28° N., W. of the ancient city of Hermopolis Magna. No traces are to be found here of ancient architectural monuments of the Persians, Egyptians, or Greeks, the earliest being those of the Romans. Here have been discovered some Artesian wells; and as these were unknown to the nations just mentioned, the secret of their construction was probably brought from the East some time before A. D. 400. 4. Oasis Magna, the modern El-Khargeh, is situated about 90 m. W. of the Nile, with which stream it is parallel. It is 80 m. in length and from 8 to 10 in breadth, stretching from lat. 25° to 26° 6′ N. It is sometimes called the oasis of Thebes, its centre being nearly opposite that city; by Josephus it is denominated "the Oasis," and by Herodotus "the city Oasis," and the "island of the blessed." It was under the dominion of the Persians, but its ruins generally belong to a later era. It had a temple 468 feet long, dedicated to Amun-ra, and after the Christian era abounded in churches and monasteries. Hither Nestorius is supposed to have been banished in A. D. 431. This oasis derives its modern name from that of its principal city.—Beside these, there are in the Libyan desert several other oases of considerable importance, and by some such large tracts of land as Fezzan are included under this term. The attractions of these oases are comparative rather than absolute. Many contain stagnant lakes, from which feverish exhalations arise, giving to the inhabitants a yellow complexion, and rendering the localities unfit to be visited during summer or autumn.

OAT, the common name of a genus of grasses having spikelets with 2 or many flowers in a loose and nodding panicle, with glumes containing 2 or more florets, the lower palea furnished with distinct lateral nervures, 2-pointed, with a bent or twisted awn, the stamens 3, and the ovary hairy at top. There are several species of oats; but the one most known and cultivated is the common oat (*avena sativa*, Linn.), having a spreading equal-sided panicle, the glumes mostly 2-flowered, longer than the florets, the uppermost 9-nerved, the florets smooth and 2-toothed at their apex. The native country of the common oat is a matter of conjecture, but probably it is Mesopotamia. In countries where other grain cannot readily grow the common oat becomes a valuable agricultural crop. It is accordingly raised for a bread corn in Ireland, Scotland, Norway, and Sweden. To render this crop profitable, attention must be paid to a careful preparation of the ground; in Scotland and Friesland the land is well cultivated, and the best oats thereby secured. The climate of Scotland is said to be peculiarly suited to the profitable raising of oats, which will there flourish when wheat and even barley languish. The grains or fruit of the oat consist of the skin or husk (which is removed by machinery) and the seeds, which when coarsely ground form oatmeal. Under proper cultivation the proportion of meal and of bran has been known to be as high as 78 per cent. of meal and 22 of husk. For food the meal is often simply stirred into boiling water with a little salt, until it becomes of the consistency of hasty pudding; it is then called porridge or stirabout, and when eaten with milk or molasses makes a wholesome and palatable food. Oat cakes are made by mixing the meal with water and kneading it into a dough, which is baked on iron plates, producing a cake palatable to those accustomed to such a diet. Oat bread is stated by Sir Humphry Davy to furnish a great amount of nourishment, and to be preferred by miners to other kinds. The coarser meal, also, browned in a hot oven, is used in broths and pottages in Germany. Grits or groats are the seeds deprived of the husks, and these when prepared with water form water gruel, the thickness or thinness of the preparation depending upon the amount of nutriment required in the particular case. The chaff or husks being steeped in water for a few days and then drained off, the liquid when boiled stiffens into a dish called in Scotland sowens, of a slightly acid taste and of cooling property, and when mixed with milk forming a common food for supper among the peasantry. Enclosed in bags, the chaff also makes excellent and cheap beds. The unhusked grain is fed extensively to horses, and sometimes the oats are given in the heads and straw, where the animals are not expected to do very hard work. In the United States the common oat is extensively cultivated, but chiefly for the food of horses.—The naked oat (*A. nuda*, Linn.) has its grain loose in the husk; although occurring wild in many parts of Europe, it has been considered to be merely a degeneration of the common oat. In Austria, where it is common, it is cultivated for its grain, which is however small and not much esteemed, though some raise it as a superior sort for making oatmeal intended to be employed in diet for the sick. There are some other sorts regarded as distinct species, but which probably are only varieties rendered permanent by climatic differences.—The walking or animated oat of the gardeners is the *A. sterilis* of the botanists, from southern Europe, the seeds of which are enclosed in stiff, hairy husks, having each a long and remarkably hygrometric awn; this when dry is twisted closely upon itself, but when moistened by dew or rain it slowly uncoils, causing the seeds to sprawl about upon the ground. When two of these grains grow together, the awns thus united, the shape of the seed and hairiness of the glume represent some insect, and the motion, which is purely mechanical, seems to be of an animated and voluntary kind. This species is sometimes cultivated as a curiosity, and the seeds may be purchased at the seed stores of American florists.

OATES, TITUS, the contriver of the "popish plot," born in England about 1620, died in 1705. He was the son of a ribbon weaver who had been an Anabaptist preacher under Cromwell, and became an orthodox clergyman under Charles II. He was educated at Cambridge, took orders, became chaplain to the duke of Norfolk, and held several curacies, but lost all his employments by his misconduct, and especially in consequence of two malicious prosecutions in which he appeared guilty of perjury. He next obtained a chaplaincy in the navy, but was dismissed from it in disgrace, and seems then to have concocted with Dr. Tonge (Teonge, or Tongue), a clergyman of the established church, a weak and credulous man who was constantly haunted with visions of plots and conspiracies, the plan of qualifying himself for the position of informer against the Roman Catholics, of whom there was at that time a strong feeling of distrust in consequence of the open preference of the duke of York for the old religion, and the suspected tendency of the king (Charles II.) toward the same belief. In 1677 he accordingly professed himself a Catholic, and entered successively the colleges of English Jesuits at Valladolid and St. Omer, from both of which he was ignominiously expelled after a short trial. Returning to England in June, 1678, he caused a written narrative of a conspiracy of the Jesuits to murder the king and subvert the Protestant religion to be drawn up and laid before the king by Tonge. Charles perceived the imposture and paid no regard to it. Stimulated to fresh inventions by this cold treatment, Oates enlarged his fiction, and in September made a deposition before Sir Edmondbury Godfrey, a justice of the peace. He added to his story at various times, and the substance of it finally was that the pope had intrusted the government of England to the Jesuits, who had already issued commissions to prominent Catholics for all the high offices of state; that bishops had been appointed at Rome for all the English sees; that the Jesuits were the authors of the great fire of 1666, and that they were then plotting to burn all the shipping in the Thames. At a given signal the Catholics were to rise and massacre all the Protestants in the kingdom. The king was to be assassinated, and £15,000 had been offered to Wakeman, the queen's physician, to poison him in his medicine, the queen being privy to the plot. The names of the parties implicated were given, among whom were nearly all the principal Catholic gentlemen of the kingdom. A warrant for seizing persons and papers was obtained. The papers of the provincial of the Jesuits were examined, and nothing suspicious was found in them; but among those of Edward Coleman, secretary to the duchess of York, were some passages expressing the hope or expectation of a speedy reëstablishment of the Catholic religion. This was unhesitatingly construed as evidence of the plot. Some color was lent to the suspicion by the death within a month, whether by suicide or murder was never ascertained, of the magistrate before whom Oates's deposition had been taken. The body was carried to the grave with every demonstration of popular excitement. Sir Edmondbury Godfrey was styled a martyr to the Protestant cause. "The capital and the whole nation," says Macaulay, "went mad with hatred and fear. The penal laws, which had begun to lose something of their edge, were sharpened anew. Everywhere justices were busied in searching houses and seizing papers. All the gaols were filled with papists. London had the aspect of a city in a state of siege. The train bands were under arms all night. Preparations were made for barricading the great thoroughfares. Patrols marched up and down the streets. Cannon were planted round Whitehall. No citizen thought himself safe unless he carried under his coat a small flail loaded with lead to brain the popish assassins." Oates became a popular hero. Almost in a moment he was raised from beggary to wealth. "He walked about," says Roger North, "with his guards assigned for fear of the papists murdering him. He had lodgings in Whitehall, and £1,200 per annum pension. . . . . He put on an episcopal garb except the lawn sleeves—silk gown and cassock, great hat, satin hat band and rose, long scarf—and was called or most blasphemously called himself the saviour of the nation. Whoever he pointed at was taken up and committed." His example was imitated by a multitude of the most despicable wretches of London, one of whom swore that he had been offered canonization and £500 to murder the king. Shaftesbury and Buckingham and the party opposed to the court were not long in using the plot as a political engine, if indeed they were not, as some suppose, the originators of it. "Shaftesbury," says North, "was the dry nurse, and took the charge of leading the monstrous birth till it could crawl alone." It has also been conjectured that the court got up the plot for its own purposes, and that the opposition took it out of the court's hands for its own purposes also. It is difficult at all events to acquit Charles of the charge of assenting to prosecutions which he knew to be groundless, in order to rid himself of the suspicion of leaning toward the Roman Catholic religion. The trials of the Roman Catholics began in Nov. 1678. The chief justice Scroggs displayed the most ferocious anxiety to convict. Juries were equally vindictive. The populace applauded Oates and his colleagues, pelted the witnesses for the defence, and shouted with delight whenever a verdict of guilty was pronounced. Stayley, a Catholic banker, Coleman, and 3 Jesuits named Grove, Pickering, and Ireland, were the first victims. Upon the pretended confession of one Bedloe, a noted swindler, three persons were next convicted of the murder of Godfrey. Five peers were sent to the tower under impeachment. For two years conviction followed accusation almost as a matter of course. No lie was too gross to be believed against the Catholics, no evidence was suffered to weigh in their favor. At last the utter improbability of Oates's story, his frequent self-contradictions, and his notoriously bad character began to be considered. His statements were first publicly questioned on the trial of Wakeman, the queen's physician. Wakeman was acquitted, and when Lord Stafford was executed for complicity in the plot in Dec. 1680, the multitude loudly expressed a belief in his innocence. Toward the close of Charles's reign the duke of York instituted a civil suit against Oates for defamatory words, a jury gave damages in the amount of £100,000, and the impostor was thrown into prison as a debtor. About the same time the grand jury of Middlesex found two bills against him for perjury, and shortly after the accession of James II. he was convicted on both indictments (1685), and sentenced to pay a fine of 2,000 marks, to be stripped of his clerical habit, pilloried in Palace yard, led around Westminster hall with an inscription over his head, pilloried again in front of the royal exchange, whipped from Aldgate to Newgate, and after an interval of two days whipped from Newgate to Tyburn, imprisoned for life, and 5 times every year pilloried in different parts of the kingdom. The judges never supposed he would survive the punishment. In the pillory in Palace yard he was nearly killed; before the royal exchange his partisans raised a riot and attempted to rescue him. On the next day he received the first scourging, the hangman laying on the lash with terrible severity. Oates swooned several times, and his shrieks were frightful. At the second whipping he was unable to stand, and had to be drawn on a sledge. A by-stander counted 1,700 blows of the whip. He escaped with life, however, and remained a prisoner until the accession of William of Orange, who annulled his sentence, released him, and afterward gave him a pension of £5 a week. The personal appearance of Oates is described as extremely revolting. He figures in Sir Walter Scott's "Peveril of the Peak."

OATH, a solemn act by which one calls God to witness the truth of an affirmation or the sincerity of a promise, and imprecates divine vengeance on his falsehood or on the violation of his faith. In all times and among all nations men have agreed in reposing singular trust in declarations made under such a sanction. In primitive and in all purer states of society, solemn oaths, it would seem, have been universally taken in the name of superior beings. Among the Jews, the Greeks, and the Romans, there came to be a familiar distinction between their greater and their lesser oaths. The same is probably true of other nations. These less solemn forms of adjuration include oaths by sacred objects, or by things peculiarly dear to those who employed them. Thus, the Jews swore by Jerusalem and by the temple; the Greeks as well as the Romans by the souls of the dead, by the ashes of their fathers, by their life or the lives of their friends, by their heads, and their right hands. These forms had their origin partly too, perhaps, in the custom of touching, during the recital of the usual formula, some object sacred to or suggestive of the divinity invoked; so that, as during the administration of the oath the swearer laid his hand upon a crucifix as a sacred symbol, or touched the altar while he swore by the god in whose honor it was raised, he came at last to swear not by the divinity, but by the altar or the "good rood" itself. But when these less impressive oaths came into common use, as they did remarkably among the Jews and the Greeks, perjury seems to have become equally common. With good reason then may it be asserted, and it is the theory of our law, that the confidence which men repose in oaths rests not in the mere ceremony of naming reverently some consecrated object, or even of calling God to witness the affirmation, but in the solemn imprecation of divine judgment upon perjury. When the Jew took his most solemn oath, he laid his hand upon the book of the law and swore by the God of Israel, by him who is merciful and gracious; but the ordinary oaths were by heaven, the altar, or the temple. The ancient Indians swore by a stream which flowed from a sacred fountain. According to Grecian mythology, the gods swore by the Styx, and made a libation of its waters; and if any immortal swore falsely, he was deprived of nectar and forfeited his divinity for 100 years. In early times the Grecian men swore by Jupiter, and the women by Juno and her chaste bed. Later each state invoked its tutelary gods or heroes. The Thebans called on Hercules, the Lacedæmonians on the Dioscuri, and the Corinthians on Neptune. The rite which usually accompanied the oath consisted simply in placing the hand upon the altar. Among the early Greeks, as we learn from Homer, the parties mingled wine in token of their concord, and then poured it out upon the ground, calling upon the gods to scatter the brains of him who first violated his faith. The form was often suggested by the office or character of the person swearing. Soothsayers swore by Apollo, merchants by Mercury, and husbandmen by Ceres. Achilles swears by his sceptre, Telemachus by his father's sorrows, Pythagoras by the air he breathed and the water he drank, Socrates by a dog and a plane tree, and Demosthenes by the heroes of Marathon. Solon commanded the invocation of three of the greater gods. Public oaths were then administered in Athens in the names of Jupiter, Neptune, and Minerva. Purgatory oaths were taken in the names of Jupiter, Neptune, and Themis, and judges swore by Jupiter, Ceres, and Helios. Numa commanded the Romans to swear by Fides. In an early and solemn form of adjuration, the swearer took in his right hand a pebble and threw it away with the words: "If knowingly I speak falsely, may Diospiter cast me away as I cast away this stone." In the most flourishing period of the state it was common to swear by the majesty or by the life or welfare of the emperor. After the murder of Cæsar, the senate decreed that the citizens should swear by his genius.—The ancient Scandinavians and Germans swore by their gods. Among both nations it was customary, while repeating the oath, to rest the hand on some special object. This was sometimes significant of the god addressed, and sometimes reminded the swearer of the punishment which followed perjury. The Scandinavians touched a bloody ring held by the priest. The Germans swore by their swords or beards. In early Christian times oaths were administered in chapels and other holy places, at the altars, which for the occasion were rendered more sacred by placing upon them holy relics. In modern times the Germans have sworn by God, and sometimes also by the holy evangel. Roman Catholics add an invocation of the saints. The party swearing raises his right hand, with the thumb and first two fingers extended, and the two remaining fingers closed upon the palm. The former typify the triune, omniscient, and all-righteous God; while the latter remind the witness, it is said, of the soul and the body which the swearer will have forfeited if he forswear himself. Women and ecclesiastics lay the hand upon the breast; the former because in old times, whence the custom comes, they wore suspended from their necks a copy of the Gospels; and the latter, if we accept the suggestion of Heineccius, because they were supposed to have the word of God written on their hearts.—It is sometimes laid down that in the definition of an oath two things are to be distinguished: 1, the invocation by which God is called to witness the truth of what is sworn; and 2, the imprecation by which God is called on to punish falsehood. Many writers of authority have indeed defined an oath without any mention of imprecation. Thus Cicero speaks of an oath as an affirmation under the sanction of religion; and more explicitly Voet, in his "Commentaries upon the Pandects," writes that it is a religious affirmation of the truth, or an invocation of the name of God in witness of the truth. A Spanish jurist, Perez, defines an oath as an affirmation on any subject by the name of God and some sacred thing; and the author of Fleta as the affirmation or negation of some point confirmed by the attestation of a holy thing. Coke uses similar language to these. But so far as the legal definition and conception of an oath are concerned, the omission of this element of imprecation must not be made, for neither in our own nor in the French or German law would any religious affirmation be regarded, if alone, as a sufficient oath. Nor, from a review of the history of oaths, does it seem generally to have been thought that the most solemn obligations were assumed by mere invocation alone. The sanction and force of an oath lie peculiarly in the imprecation of divine vengeance upon perjury. This element is certainly held essential by our law; and in this respect it is supported by the highest authorities—the Pandects for example, Grotius, Pufendorf, Rutherforth, and Heineccius. In the language then of Phillips, an eminent text writer upon evidence, a witness, in taking an oath, must be understood to make a formal and solemn appeal to the Supreme Being for the truth or the evidence which he is about to give; and further, to imprecate the divine vengeance upon his head if what he shall say be false. Atheists therefore, as they deny the existence of a Supreme Being, and such infidels as profess a religion which does not bind them to speak the truth, could not, by the common law, be witnesses. It was laid down in the leading and interesting case of Omichund *vs.* Barker, that the competency of a witness in regard to his religious opinions should be tested by the questions whether he believed in a God, in the obligation of an oath, and in a future state of rewards and punishments. But it is not now required that the witness believe in future punishment. Generally a disbelief in a future state goes only to affect the credibility of the witness; but he will be admitted to testify under oath if only he believes in the existence of a God who will punish crime, it matters not whether in this life or in another. If, on being questioned, the witness reply that the usual form of the oath will be binding on his conscience, it would be irrelevant and unnecessary to examine him further as to his belief. What this may be is immaterial; for if he takes the oath, he is understood to assume its religious obligations, and subject himself to the legal penalties which are inflicted on perjury if he speak falsely. The English statute 17 and 18 Victoria, c. 25, permitted those who from conscientious motives should be unwilling to take an oath, to make instead their solemn affirmation. The same indulgence is granted by statutes in the United States; and in some of the states there are even further relaxations of the ancient rules. (See EVIDENCE.) The form of administering the oath has nothing to do with the oath itself. That form is in every case the best which most forcibly impresses on the swearer the obligation of the oath, or in other words is most binding on his conscience. Jews are sworn therefore on the Pentateuch, and with covered head. Mohammedans are sworn upon the Koran. A Chinese has been sworn with the ceremony of breaking a china saucer; and the deposition of a Hindoo has been received who touched with his hand the foot of a Brahmin. Even one who professes Christianity may be sworn on the Old Testament, if that form alone is binding on him.—Of the various kinds of oaths, the promissory, assertory, decisory, and *calumniæ causa* are most frequently met with. Promissory oaths refer to future acts, like those taken by public officers for the guaranty of their faithful performance of official duties; or they attend the promise to execute some contract or undertaking. Assertory or affirmative oaths establish the certainty of a present or past fact. To this class belong the various forms of decisory oaths; for example, the voluntary, when, as in the civil law, one asserts the justice of his claim; or the necessary, when the judge calls in one of the contesting parties to swear to a matter doubtful to him, in order to assist his determination of the cause. But the decisory oath by excellence is perhaps that in the civil law, which one party offers to the other, for the decision of the matter in dispute; that is to say, a party whose proof is defective may tender an oath to his adversary, offering to submit to whatever he shall thus declare touching the matter. If the fact in question lie particularly within the knowledge of the latter, he must swear, or the plaintiff's general allegations will be regarded as proved. If the fact lie within the knowledge of both parties, he to whose oath it was referred may elect either to swear or to refer the matter back to the party who first tendered the oath. If he refuse to do either, the fact alleged is held to be confessed and proved. In the Roman system, when an action was brought, either party must, at the other's request, take an oath that he did not maintain or defend the cause *calumniæ causa;* that is, for the mere sake of harassing his opponent. If the party challenged took the oath, the other could bring no action against him for reckless litigation. Before Justinian this procedure was optional, but he made it a necessary preliminary to bringing or defending any action.

OAXACA. See Oajaca.

OBADIAH (Heb., servant of the Lord), one of the minor prophets. We know nothing of him except his name; his native country, the place where and the time when he prophesied, are entirely uncertain, as neither his own prophecy nor other contemporaneous writings contain any information respecting them. It is, however, generally inferred from the tenor of his prophecy that he was an eye-witness of the destruction of Jerusalem by Nebuchadnezzar. The prophecy of Obadiah is the shortest book of the Old Testament, containing only one chapter, of 21 verses. It is directed against the Edomites, who maliciously assisted in the capture and destruction of the holy city. The prophet announces to them the fall of their capital Edom, and the approach of divine aid for Israel.

OBE. See Obi.

OBELISK (Gr. *οβελισκος*, diminutive of *οβελος*, a sharpened thing, a skewer or spit), a lofty monolithic, quadrangular shaft, tapering gradually from the base to the summit, which terminates in a pointed, four-sided pyramid. The obelisks are among the most simple and striking of the architectural monuments of Egypt, to which country they are peculiar, and are connected by tradition with its earliest public works. The oldest of which we have any knowledge is that now standing at Heliopolis, inscribed with the name of Osirtasen I., of the 12th dynasty, who flourished between 2000 and 1860 B. C.; and between that era and the Persian conquest, 525 B. C., all those of Egyptian origin known to be in existence were erected. None occur of later date than the latter event. Many fanciful and ingenious theories have been advanced to explain their purpose and origin, but without clearing the mystery attaching to the subject. They were long regarded as connected with the worship of the sun, and some etymologists derive the name from a Hebrew word supposed to signify a serpent sacred to the sun. Others again have attempted to prove that they were employed as sun dials, or as monumental columns in honor of the great luminary. The term itself throws no light upon the subject, and the ludicrous association of its original signification, a spit or stout needle, with the colossal shafts to which it is applied, is suggestive of the caustic humor of the Alexandrian Greeks. In the opinion of recent Egyptologists the obelisks were monumental structures, partly religious, partly historical in character, and to some extent ornamental, placed at the entrances of palaces and temples to indicate by the inscriptions carved upon them the purposes to which such edifices were to be applied, the divinity to which they were dedicated, the name and regnal year of the king who erected them, and other facts of sufficient public importance to be thus recorded. As architectural accessories they relieved the monotony of the numerous horizontal lines occurring in buildings constructed by the Egyptians. They generally stood in pairs, the smaller ones being either of sandstone or granite, while the larger were almost invariably of the rose-colored granite of Syene in southern Egypt, which is susceptible of a fine polish. The shaft was usually from 8 to 10 times higher than the width of its base, and ¼ narrower at the top than at the base, which rested on a quadrangular pedestal, several feet broader than the obelisk. The base was seldom perfectly square, two of the sides being somewhat broader than the other two; and for the purpose of obviating the concave appearance which under certain conditions of sunlight a plane surface would present, the faces of obelisks, particularly of those which are opposite to each other, exhibit a slight convexity about their centres—"one of the many proofs," says Sir Gardner Wilkinson, "of their (the Egyptians') attentive observation of the phenomena of nature." The apex or pyramidion was also more pointed in some obelisks than in others, and appears occasionally to have been sheathed with metal. Wilkinson mentions one near Biggig which has a rounded apex. They varied in height from 20 to somewhat over 100 feet, and the largest weighed from 400 to 500 tons. The process of hewing these colossal blocks from the quarries and transporting them, in some instances 800 m., to the places where they were to be erected, must be reckoned among the most wonderful achievements of the ancient Egyptians. The obelisk appears to have been rough hewn on 3 of its sides while adhering by the fourth to the quarry, from which it was finally separated by a number of mealt wedges struck at the same instant along its whole length. Sometimes the wedges were of wood, which, being driven into holes previously cut for them and then saturated with water, split the stone by their expansion; although, according to Wilkinson, "such a method could only be adopted when the wedges were in a horizontal position, upon the upper surface of the stone; but those put into the sides were impelled by the hammer only." Some doubt has been thrown upon this theory of the method of excavation from the fact that the granite of Syene at the present day appears of too hard a texture to admit of being thus quarried. From an inspection of some of these quarries it would seem that the block, when separated from the rock, was lifted directly from the hollow in which it had been cut, although, according to Pliny, it was sometimes lowered down an inclined plane or platform to a raft, formed by lashing two flat-bottomed boats together, and which had been brought up to the very edge of the quarry either at the time of inundation or by means of a canal dug from the Nile. This may have been the case with small obelisks, but the large ones were transported altogether by land on sledges and rollers, according to the method represented in the ancient picture which forms the frontispiece to the 2d volume of Sir Gardner Wilkinson's "Ancient Egyptians." Evidently the transportation of obelisks from Syene to Heliopolis in lower Egypt must have occupied several years. The erection of the obelisk when arrived at its destination was accomplished, according to Diodorus, by means of mounds or inclined planes of earth. Previous to this, it was carefully polished, and the necessary figures and hieroglyphics were inscribed by the sculptor. Some, however, are without inscriptions of any kind.—The number of monuments of this species, probably at one time considerable in Egypt, has been greatly diminished by the violence of wars, neglect, and various physical causes. Many of them are no longer standing, but lie upon the adjoining ground, in some instances broken and mutilated. The Persian conqueror Cambyses, who is said to have overthrown a number when he sacked Thebes and other cities, was so struck by the magnificence of one erected in the former place by Rhamses, and to which that monarch had ordered his own son to be bound in order that its erection and proper adjustment might be insured, that he countermanded the order given for its destruction. Under the Ptolemeian kings many obelisks were removed to Alexandria; and the Romans upon becoming masters of Egypt conveyed several of great size by sea to Rome as memorials of their triumphs. Eleven of these are still standing there, although not in the positions where they were originally placed, the greater part having been overturned and in some instances broken during the decline of the empire and the successive plunderings of the city by barbarian hordes. Sixtus V. first conceived the idea of reërecting or restoring these ancient monuments of art, and in 1586 the obelisk of the Vatican was placed on its present pedestal by the architect Domenico Fontana, whose plan had been selected out of 500 offered to the pope. This obelisk, which, exclusive of its base and the ornaments on the apex, has a height of 82 ft. 2 in., was brought from Heliopolis by the emperor Caligula, in a ship described by Pliny as the largest which had ever navigated the sea. The same pope, with the assistance of Fontana, subsequently erected the obelisks of S. Maria Maggiore, the Lateran, and the Piazza del Popolo, each of which was found lying on the ground, broken into several pieces and encumbered with rubbish. That of the Lateran, the largest now known, was brought from Heliopolis to Alexandria by Constantine the Great, and was removed to Rome by his son Constantius, who placed it on the spina of the Circus Maximus. Notwithstanding a portion of the lower part was cut off by Fontana, in order to adapt the fragments, it measures 105 ft. 7 in. without the ornaments and pedestal, and is estimated to weigh 450 tons. That in the Piazza del Popolo, measuring 78 ft., was brought from Heliopolis by Augustus and placed in the Circus Maximus. This and the two latter are covered with hieroglyphics, but the obelisk of S. Maria Maggiore, the smallest of the three, is destitute of them. The other obelisks in Rome are: that of the Piazza Navona, 51 ft. in height, found in the circus of Romulus, and erected by Bernini in its present position in 1651, during the pontificate of Innocent X.; that of S. Maria sopra Minerva, 39 ft., erected in 1667 by Bernini in the pontificate of Alexander VII.; that of the Pantheon, 17 ft., erected in 1711 by Clement XI.; those of Monte Cavallo, 45 ft., Trinità de' Monti, 44 ft., and Monte Citorio, 71 ft. 6 in., erected in 1786–'92 under the pontificate of Pius VI.; and that of Monte Pincio, 30 ft., erected in 1822. In all cases the dimensions of these are given without the bases or the tasteless additions in the shape of globes, stars, or rays, which the Romans placed on the apices under the impression that they were originally intended for sun dials. Several of these in modern Rome terminate in crosses. Obelisks were also transported to Constantinople before the severance of the empire, and others are to be found in Velletri, Benevento, Florence, Catania, and Arles, although not all of these are of Egyptian origin. That in the last named place, which was discovered in 1389 buried in the mud of the Rhone, and erected in its present position in 1675, is nearly 54 ft. in height. —The obelisks remaining on their ancient sites are comparatively few. Among the most famous are that at Heliopolis, already mentioned, 68 ft. 2 in. in height above the base, and which formerly, according to tradition, had a companion one; a very fine one at Luxor, 70 ft. 2 in. in height, erected by Rhamses II.; four at Karnak, the two largest, of which one is fallen, measuring 92 ft. in height by 8 at the base, and the two at Alexandria known as Cleopatra's needles. A companion obelisk to the one in Luxor was in 1833 transported to Paris, and in 1836 erected in the Place de la Concorde, where it now stands. Under the influence of the moist climate of Paris the granite has so rapidly disintegrated that it has become necessary to take plaster impressions of its hieroglyphics in order that they might not be entirely lost. Sir Gardner Wilkinson, who witnessed the removal of this shaft from its original position, discovered that it had been cracked previous to its erection and secured by two wooden dovetailed cramps. The Cleopatra's needles, which are about 70 ft. in height with a diameter at the base of 7 ft. 7 in., stood originally at Heliopolis, and were brought to Alexandria by one of the Cæsars.—One of them, which has been thrown down and lies close to its pedestal, was presented by Mehemet Ali to the British government, who at one time determined to transport it to England. But from its mutilated condition and the obliteration of many of the hieroglyphics, its value has become so greatly reduced, that it has been considered unworthy the expense of removal. The so called obelisk brought from Philæ to England by Mr. Bankes measures 22 ft. 1 in., and is the largest Egyptian monument of the kind in Great Britain. Properly speaking, however, it is not an obelisk, but a stela. The British museum has 2 small ones brought by the French from Cairo.—Monuments of the obelisk form, not in all cases monolithic, have not been uncommon in modern times, that erected on Bunker hill being a well known example. Monolithic monuments nearly resembling Egyptian obelisks have been recently excavated among the Assyrian ruins of Nimroud. The British museum contains an interesting specimen, 6 ft. 6 in. high, 2 ft. wide at the bottom, and 1 ft. 6 in. at the top, which, instead of terminating in a pyramid, diminishes by 3 steps, the summit presenting a perfectly flat surface. It is profusely adorned with bass-reliefs and inscriptions, but is far inferior in design and execution to the Egyptian monoliths. The obelisk in Axum, Abyssinia, the survivor of 55 monuments of this kind once standing there, terminates in a rounded patera, and has been supposed to be of a date later by many centuries than the most recent Egyptian obelisks.

OBERFLACHT, a village of Würtemberg, in the district of Tuttlingen, noted for sepulchral remains discovered there in 1855, and supposed to date from the Carlovingian period. The relics of many of the graves, upward of 60 of which have been opened, are preserved in the museum of the Nuremberg archæological society. With the skeletons were found swords, lances, arrows, and well preserved bows of yew, 6 to 7 feet long. Among other relics were forms of wooden feet supposed to represent the mythological death-shoes (*Todtenschuhe*).

OBERLIN, a village of Lorain co., Ohio, on the Cleveland and Toledo railroad, 34 m. S. W. from Cleveland; pop. in 1860, 2,132, exclusive of students. It is noted principally as the seat of Oberlin college, founded in 1834 and named after J. F. Oberlin. Its discipline combines manual labor with study, and by its rules males and females are admitted without regard to color. The institution is under the direction of the Evangelical Congregationalists, comprises several distinct departments, occupies 7 commodious buildings, and has 900 students. The village contains a large Congregational church, capable of holding 3,000 persons, and an Episcopal church.

OBERLIN, Jean Frédéric, a French philanthropist, born in Strasbourg, Aug. 31, 1740, died in Waldbach, in the Ban de la Roche, June 1, 1826. From a child he was remarkable for benevolence and courage. He was educated at the university of Strasbourg, and ordained, but did not immediately take a pastoral charge, remaining 7 years as a tutor in a physician's family. In 1767 he succeeded Stouber as pastor of the villages in the Ban de la Roche, Alsace. This district, lying in the Vosges mountains, contained about 9,000 acres of sterile, rocky soil, with no roads except difficult mule paths. The people were very poor, ignorant, and indolent; they had few agricultural implements and little knowledge of agriculture; their language was a barbarous *patois*, and very few of them could read even imperfectly. Oberlin spent 60 years among them, laboring for their social, intellectual, and moral improvement. By his example and influence, good roads, bridges, and comfortable dwellings were erected; admirable schools were established, in which all the children and many of the adults were taught; agriculture and horticulture were so greatly improved, that this barren and desolate region became like a garden, producing considerable quantities of vegetables for exportation, notwithstanding its dense population; the French language came to be spoken in as much purity as in the large cities of France; churches were erected; and in morality and religion the Ban de la Roche became a model for the rest of France. The infant school, the Sunday school, and the asylum for homeless and helpless children, were all measures originating with Oberlin; and though about the same time similar institutions were devised in other countries, there is abundant proof that his organizations were not borrowed from those of others. The training of female teachers for their work was also first attempted by him in his school of conductresses. (See "Memoirs of John Frederic Oberlin," by H. Ware, jr., Boston, 1845.)—Jérémie Jacques, elder brother of the preceding, born in Strasbourg, Aug. 7, 1735, died there, Oct. 10, 1806. He was a graduate of the university of that city, and officiated for many years as professor in various branches of study, particularly of logic and metaphysics. He published several works relating to Roman archæology and to the provincial dialects of Lorraine, and various other writings.

OBI, OBE, or OB, a river of Siberia, formed, at about lat. 51° 40′ N., long. 85° 20′ E., by the junction of the Katunga and Biya, which rise in the Altai mountains. It pursues a very circuitous but generally N. W. course to lat. 60° 40′, where it is joined by the Irtish from the S., whence the united stream runs nearly N. to Obdorsk, lat. 66° 40′, where it separates and flows E. into the gulf of Obi by 3 mouths after a course of about 2,000 m. Beside the Irtish, which after receiving the Tobol is larger than the river into which it flows, the principal tributaries of the Obi are the Tom, Tchulim, and Vak. Fish are abundant in all these rivers. The gulf of Obi is an inlet from the sea of Kara, which lies between Nova Zembla and the mainland. It is of irregular form, extending between lat. 64° 30′ and 72° N. and long. 68° and 77° E.

OBI, an African word signifying a species of sorcery or witchcraft common among the fetich-worshipping negro nations. In Africa the practice bears different names in different languages. In the British West Indies, where it formerly existed among the slaves to an extent that called for legislative interference, the name obi was universally used. The practisers of the art, who were always native Africans, were called obi men or obi women, and were held in great dread by the negroes, who consulted them as oracles, and applied to them for the cure of disorders, to obtain revenge for injuries, and to discover and punish thieves and other offenders. Their mode of operation was to prepare a magical fetich, which, being set up near the dwelling of the person to be bewitched, was supposed to produce the most direful effects upon his health and welfare. The law of Jamaica, enacted in 1760, which prohibited under severe penalties the practice of obi, enumerates among the materials used for fetiches or spells, blood, feathers, parrots' beaks, dogs' teeth, alligators' teeth, broken bottles, grave dirt, rum, and egg shells. Balls of earth or clay mixed with hair, rags, or feathers, and bound with twine, or in some cases blended with the upper section of the skulls of cats, or stuck round with cats' teeth and claws, or with human or dogs' teeth, and with glass beads, were also used. The negroes who became aware that "obi was set for them" generally soon fell ill from terror, and almost invariably died of a species of decline. It is probable, also, that poison was occasionally used to heighten the effects of the supposed enchantment. In 1760 the influence of the obi men produced a formidable insurrection among the slaves in Jamaica, and several of these sorcerers were hanged by the authorities.

OBION, a N. W. co. of Tenn., bordering on Ky., separated from Mo. by the Mississippi river, and intersected in the S. E. by the Obion river; area, about 700 sq. m.; pop. in 1850, 7,633, of whom 1,057 were slaves. Its surface is low toward the Mississippi, and elevated and undulating in the E., and the soil is fertile. The productions in 1850 were 445,420 bushels of Indian corn, 9,418 of oats, 189,305 lbs. of tobacco, and 54,379 of butter. There were 10 grist mills, 2 saw mills, and 6 churches. The Mobile and Ohio railroad intersects the county. Capital, Troy.

OBJECTIVE AND SUBJECTIVE, in modern philosophical language, terms applied respectively to things in the mind and to things outside of the mind, to the internal and to the external element, in every act of thought. The subject is *id in quo;* the object, *id circa quod;* and all knowledge is but a relation between the subject in which it adheres, and the object about which it is conversant. The subjective exists merely in the thought of the individual, in the Ego; the objective exists in nature, in the Non-Ego. To analyze the contents of our thoughts, and distinguish what elements are contributed by the knowing subject and what by the object known, is one of the principal problems of philosophy. The distinction suggests the inquiry, which has been raised in every age of speculation, whether the objects of thought really exist at all apart from the mind, or, if they do, whether they are truly and adequately represented by the ideas which we have of them. Protagoras taught that we know nothing of external things in themselves, but judge them only by their relation to us, by the measure of our own faculties. Gorgias maintained that truth is inaccessible to the human mind, that there is a fatal chasm between thought and objective reality. Ænesidemus and the new academy anticipated Hume by making the relation of cause and effect merely a law of our own intelligence, and denying its existence in the nature of things. Carneades argued against the stoics that we have no means of discovering whether our faculties are truthful or false, adequate or inadequate, or whether any thing in nature corresponds to our ideas. The distinction between the subjective and objective, thus familiar to Greek thought, was not, however, expressed by the corresponding terms *ὑποκείμενον* and *ἀντικείμενον*, the former of which meant substance and also the subject of a proposition. The Latins translated them *subjectum* and *objectum*, which the scholastic philosophers opposed to each other, but by giving them significations nearly the reverse of those which they bear now. They understood by the subject the unknown basis of phenomenal or manifested existence, the substance underlying the phenomena of objects. Subjective is thus used by Occam to denote that which exists independently of mind; objective, that which the mind feigns. The same meaning is preserved by Berkeley, who opposes the real or subjective to the phenomenal or objective nature of things. This explains the *realitas objectiva* of Descartes, which meant only existence in idea, or, in modern phraseology, subjective existence. Objective existence was expressed by formal or actual reality. Thus, according to Descartes, the sun exists objectively in our thought of it, formally in the heavens. But the term subject, in the sense of substance, was equally applicable to the internal and the external worlds; it could designate the unknown basis, the essential principle, of mental as well as material phenomena. Kant transferred it from outward nature, and appropriated it exclusively to the mind, and the result was an inversion of the meanings of objective and subjective. The distinction underlies the whole critical or transcendental philosophy, the different schools of which rest upon changes played upon this relation. According to Kant, the pure reason can affirm only the subjective existence of whatsoever objects of thought; time, space, cause, the soul, matter, and God appear only as simple forms of thought, without outward reality. The practical reason, however, dogmatically and unscientifically affirms that they also exist objectively. The system of Fichte recognizes only a single and absolute principle, the Ego, which is at once subject and object, its own observer and its own spectacle, which in developing itself creates the universe, nature, and man. It resembles the pure Kantian system, without the contradictions of the practical reason. While the idealism of Fichte thus derived the object from the subject, Schelling developed a system of transcendental identity, rising above both the terms to a superior principle in which they are united and blended. All opposition between them disappears; nature and the soul proceed alike from the absolute being, in whom their identity is manifested, and who in developing himself becomes the universe, nature, and man. The scheme is pantheistic; the human faculty of intuition comprehends the absolute by becoming absolute, and all thought is objective. The subjective idealism of Fichte and the objective idealism of Schelling gave place to the absolute idealism of Hegel, which recognizes only the logical processes of universal reason, and affirms being and thought to be identical.—The terms have been transferred from philosophy to literature and art, where they characterize respectively real and ideal qualities and tendencies.

OBOE. See Hautboy.

OBOLUS, a small Greek coin, $\frac{1}{6}$ of a drachma, equal in value to about 2.6 cents. In the best times of Athens it was made of silver only, but later of bronze. It was the price of the passage over the river Styx, and the Greeks put an obolus into the mouth of the dead, for Charon, the ferryman.

OBRENOVITCH, a Servian family, three members of which, Milosh (born about 1780, died Sept. 26, 1860) and his two sons, Milan (born Oct. 12, 1819, died July 7, 1839) and Michael (born Sept. 4, 1825), have held the princely dignity in their native country during the last 50 years. Milosh was the son of Tesho, a poor laborer of the village of Dobrinye, and together with his two brothers, Ivan and Yefrem, was for some years engaged in grazing, and subsequently entered the service of his uncle, Milan Obrenovitch. The latter having joined the popular rising against the Janizaries early in the 19th century, in which he rose to the dignity of vayvode or commander, Milosh exchanged his farming implements for the sword, fought bravely in various engagements, and earned not only great renown among his warlike countrymen, but for some time also the favor of the chief revolutionary leader, Czerny or Kara George. During the war, Milosh married Lyubitza, by whom he became the father of four children, two of them daughters. On the outbreak of the Russian war against Turkey in 1809, Milosh again served with distinction; and when in 1810 his uncle, who was sent on a mission to the Russian camp, failed to return, he succeeded him, under the adopted name of Obrenovitch, in military command as well as in the possession of his estate. The disastrous period which followed the peace of Bucharest (1812), concluded between the czar and the sultan, offered Milosh still greater opportunities for displaying his patriotism and courage, one of his most renowned feats being the defense, for 17 days, of the village of Ravani in 1813; and when even Czerny George despaired of success and fled from the country, he alone persisted, obtained favorable terms from the Turks, and was by them appointed as *knez* with the mission of pacifying the country, which he accomplished (1814). The Moslems, however, soon committed new acts of violence; and on Palm Sunday, 1815, Milosh again gave the signal for insurrection. Though meeting with some defeats at the beginning of the new struggle, he soon after became victorious, and in 1816 conquered a favorable peace, which guaranteed national autonomy to the larger part of the Servian territory, but left the Turks in possession of Belgrade and other towns. The pasha of Belgrade attempted in vain to remove him by treacherous means; and in Nov. 1817, he was solemnly elected hospodar of Servia by an assembly of bishops and chiefs. Four months earlier Czerny George, who had secretly reëntered the country which he had delivered, was treacherously sacrificed to the bloody vengeance of the Turks. Various conspiracies against Milosh, in 1820, 1824, and 1825, were suppressed with energy and cruelty, and he was not only acknowledged as hospodar by the national assembly (*skuptchina*) of Kraguyevatz in 1827, but after the new Russian war against Turkey and the peace of Adrianople (1829) was also confirmed by the Porte as hereditary prince of Servia, the limits of which were enlarged and finally fixed by a *hatti-sherif* in 1834. The influence of Russia, which also held the chief control of the Danubian principalities, was now predominant in Servia, and Milosh tried in vain to emancipate himself from it by an abortive attempt in 1835 to introduce a liberal charter. The influence of the English envoy, Col. Hodges, was overbalanced by that of the Russian, Vashtchenko, who succeeded in limiting and crippling the power of the prince by the establishment of a senate with extensive privileges. Yefrem, who was placed at the head of the senate, was gained over by the enemies of his brother, who at the beginning of 1839 was almost a prisoner in the hands of the commander of the militia, Vutchitch. His other brother, Ivan, made an unsuccessful attempt to deliver him through the guards, and only hastened his downfall. Milosh was compelled to resign in favor of his son Milan, and left the country about the middle of June. Milan, however, survived his accession only a few weeks, and his younger brother Michael, who had accompanied his father into exile, was proclaimed his successor. Milosh, who had already protested against all that had happened, hesitated to allow his son to obey the call, but finally yielded, and remained in exile, living chiefly on his estates in Wallachia or in Vienna, where in 1845 he was saved from blindness through an operation for cataract. Michael, repairing with his mother to Constantinople, was favorably received by the Porte, proclaimed an amnesty, and made a triumphal entry into Belgrade, March 15, 1840. Here, however, he had to contend with numberless difficulties, with the opposition of the senate, the intrigues of Russia, of the widow of Czerny George, and of her son Alexander, the enmity of Vutchitch and Senator Petronievitch, who had been members of a regency before his arrival, and finally with violent popular commotions, directed at the same time against the ex-regents, the Russian and Turkish protectorate, and the abuses of the government. Unable to cope with his enemies, Michael in vain endeavored to terrify them by acts of cruel severity, and finally succumbed to a new insurrection under the lead of Vutchitch, in Sept. 1842. The house of Obrenovitch was now solemnly deposed, and Alexander Karageorgevitch proclaimed prince of Servia. Michael, who had fled to Semlin, now joined his father in Vienna, and, after some attempts to restore the power of his house by means of conspiracies or diplomatic intrigues, travelled extensively through Europe, and subsequently lived with his father in Vienna and Wallachia. Warlike preparations for an invasion of Servia, on the outbreak of the Russian war in 1853, had no result; but finally, after long years of exile, the two princes were restored to their country and to power by the revolution of Dec. 1858, which overthrew the rule of Prince Alexander, sending him into exile, and reinstated Milosh in his former dignity. The latter having been proclaimed prince by the skuptchina, Dec. 23, was confirmed by the Porte, Jan. 12 of the following year, and together with his son reëntered Belgrade in triumph on Feb. 6. Having met with some diplomatic hostility on the part of Austria, Milosh during the ensuing war in Italy formed relations with the more revolutionary elements of Europe, and through the remainder of his reign maintained a firm attitude. In Sept. 1859, he personally opened the skuptchina, which among other enactments proclaimed the right of the male line of the house of Obrenovitch to hereditary succession in the principality. This right was not acknowledged by the Porte, but Michael, after the death of his father (Sept. 26, 1860), found no difficulty in being personally confirmed as his successor.

O'BRIEN, William Smith, an Irish agitator, born in the county of Clare, Oct. 17, 1803. He belongs to a family ranking among the most ancient in Ireland, and deriving its descent from Brian Boroihme. He was educated at Harrow and Cambridge, in 1827 entered parliament for the borough of Ennis, county Clare, and in 1832 was returned for county Limerick, a constituency which he continued to represent for many years. The "repeal" movement of 1842-'3 enlisted his sympathies, and he distinguished himself by his strenuous opposition to the passage of the Irish arms act, Aug. 1843. The arrest of O'Connell and the other repeal leaders in the succeeding November, on charges of conspiracy and unlawful assembling, led to his becoming an active member of the repeal association. He now became a violent debater on questions affecting Ireland; and in May, 1846, for refusing to serve on committees of the house, he was committed to the custody of the sergeant-at-arms, who held him in confinement for several days. Upon the introduction by John O'Connell of his peace resolutions into the repeal association, in July, 1846, he left that body, with the "Young Ireland" or physical force party. He nevertheless abstained from counselling violent action; but the French revolution of 1848 gave an ultra tone to his views, and shortly after that event he made a violent speech in the house of commons threatening to establish an independent republic in Ireland. In April he accompanied a deputation sent by the "Irish Confederation" to Paris, to request aid on behalf of the "oppressed nationality of Ireland," and received abundant expressions of sympathy from Lamartine and his coadjutors, but no direct offers of assistance. Returning home in May, he aided in organizing a national convention of the Irish people, which however was not permitted to assemble. In May he was brought to trial together with Thomas Francis Meagher, on a charge of sedition, but escaped conviction. His intemperate zeal soon hurried him into more overt acts of treason, and in July, 1848, he attempted a rising among the peasantry of Ballingarry, which was promptly suppressed by the police. He took refuge in Tipperary, and on Aug. 5 was arrested near Thurles and conveyed to Dublin. He was brought to trial at Clonmel in October on a charge of high treason, convicted, and sentenced to death; but the sentence was commuted to transportation for life. In July, 1849, he embarked for Van Diemen's Land, where he remained until 1854, when the pardon accorded to the Irish agitators of 1848 enabled him to return home. In 1859 he paid a visit to the United States.

OBSERVANTS. See Franciscans.

OBSERVATORY, a place appropriated for making observations upon any great class of natural phenomena. Observatories are of three kinds: magnetical, for observing the phenomena of terrestrial magnetism; meteorological, for observing the phenomena of atmospheric changes; and astronomical, for conducting observations of the heavenly bodies. The purposes of the astronomical observatory are to scrutinize celestial objects and phenomena which, on account of their distance or minuteness, are invisible or imperfectly visible to the naked eye, and to afford accurate measurement of angles and spaces in the heavens. For effective work, it is necessary that there should be a fixed support for the instruments, and exemption from tremors and atmospheric disturbances. To secure the first, the instruments are to be firmly planted on stone piers, with a foundation of clay or rock if possible, or deeply bedded in solid ground, and completely isolated from all other bases of support and from the building which covers them. To secure the second, a situation is to be chosen secluded from ways of travel and business. It is important that the locality be dry, of equable temperature, as nearly exempt as possible from fogs, clouds, &c., and screened from high winds so far as is consistent with a free view of the horizon. The instruments on which exact astronomy is founded are the transit and its clock for obtaining and keeping exact time, and the mural circle for measuring the meridian distances of stars from the zenith. There are also several other principal instruments, viz.: the equatorial, which admits of being directed to any part of the heavens, and is adapted to some of the most interesting departments of modern astronomy; the heliometer, for taking the most difficult micrometric measurements; and the altitude and azimuth circle, for determining these elements of a star's place. Beside these, every well equipped observatory has a variety of lesser instruments selected according to the special work to be carried on. Barometers, psychrometers, thermometers, chronometers, &c., are also important accessories. Of the more ancient instruments only the zenith sector and the mural quadrant are now retained. The American method of recording observations by means of electro-magnetism has introduced a novel and elegant kind of apparatus among the equipments of the observatory, and has greatly increased the efficiency of the labors of the practical observer.—The first epoch of modern practical astronomy begins with the labors of Tycho Brahe at his castle of Uraniburg near Copenhagen (1576). From these labors Kepler drew the argument of his demonstration of the three great laws of motion. But Uraniburg has disappeared; hardly its site is known. Of the great astronomical institutions extant, the imperial observatory of Paris is the oldest. Built in 1667–'71 by order of Louis XIV., and designed by Claude Perrault, the famous architect of the Louvre, it was an edifice of great magnificence, but unfortunately ill adapted to the purpose for which it was intended. Dominique Cassini, an Italian, who had been invited to Paris to adorn the court of the "grand monarch," was its first director. Here Picard, whose accurate measurement of an arc of the meridian (1669) furnished Newton with the basis of his demonstration of the theory of universal gravitation, labored from 1673 till his death in 1682, with great usefulness to practical astronomy. This institution, in recent times, attained a high degree of efficiency under the directorship of Arago. It is now directed by Leverrier. The royal observatory at Greenwich began operations in 1676, with Flamsteed for astronomer royal, whose observations supplied Newton with the means of developing his great principle of matter. Professor Airy, the present incumbent, succeeded to the directorship in 1835. The Tusculan observatory in Copenhagen was built in 1704, for Roemer, the discoverer of the velocity of light. Peter the Great caused an observatory to be erected in 1725 at his capital, and the French astronomer De Lisle was invited to be its director. In 1830 the emperor Nicholas declared that "the honor of the country appeared to him to demand the establishment, near the capital, of a new astronomical observatory, conformable to the actual state of science, and capable of contributing to its ulterior advancement." Accordingly a building was erected in 1839 at Pulkowa, a small town 10 m. S. W. from St. Petersburg, on a scale of unprecedented magnificence. The cost for erection and equipment was about $500,000, and $50,000 are annually appropriated from the imperial treasury for its maintenance. It is the best endowed and the most perfectly organized of all European observatories. Attached to it are a very fine library and workshops for making requisite repairs and alterations in the instruments. In 1844 there were no fewer than 108 persons, including the families of those employed, residing within its precincts. M. Struve, its director, has given a complete description of this establishment in a magnificent work entitled *Description de l'observatoire astronomique central de Pulkowa* (2 vols. fol., St. Petersburg, 1845). The labors of Sir William Herschel at his private observatory at Bath and afterward at Slough, near Windsor, constitute an era alike in speculative and in practical astronomy. The observatory at Dorpat, Russia (about 1811), was the scene of the elder Struve's researches in sidereal astronomy, which have rendered his name illustrious, and of the no less useful labors and speculations of Mädler in the same department, who succeeded to the directorship on Struve's appointment (1839) to the new establishment at Pulkowa. The observatory of Königsberg (1813), under the directing genius of Bessel, who first dropped the plummet into the regions of the fixed stars by means of the parallax of 61 Cygni, became second to none during the present century for its contributions toward the improvement of every branch of astronomy. The observatory of Berlin (about 1834) is important on account of the labors of Encke. Here the planet Neptune was first seen by Dr. Galle, Sept. 23, 1846. Of the British public establishments of the first class, there are, beside that at Greenwich, already mentioned, the Radcliffe observatory at Oxford (1774), the Rev. R. Main director since 1859; that at the cape of Good Hope (1821), memorable for the successful researches of Professor Henderson, of Edinburgh, in determining the parallax of Alpha Centauri, and which has been under the direction of Mr. Maclear since 1833; that at Cambridge (1824), Professor Challis director since 1835; and the royal observatory of Edinburgh (about 1825), Professor Piazzi Smyth director since 1844. There are many other European observatories justly famous; for example: at Bonn, the scene of Argelander's splendid labors and triumphs; at Bremen, where Dr. Olbers discovered the 2d asteroid, Pallas, in 1802, and the 4th, Vesta, in 1807, and for 15 years directed the search for new planets; at Bilk, under the directorship of Dr. Luther; at Altona, Athens, Breslau, Florence, Göttingen, Hamburg, Leipsic, Munich, Ofen, Rome, Santiago, Seeburg near Gotha, Upsal, Vienna, and many others. The English have also observatories at Madras, India, and at Sydney in New South Wales, formerly at Paramatta. An active and intelligent interest prevails throughout the British empire for the promotion of practical astronomy. This is, in a great degree, due to the influence of the royal astronomical society, an offshoot (1820) of the royal society. This interest is shown in the establishment of numerous private observatories which have enriched science with many brilliant discoveries. Thus, Lord Rosse has erected at Parsonstown, co. of Louth, Ireland, the most stupendous instrument known, of incomparable performance, whose disclosures are of the profoundest interest, and have furnished new arguments in the nebular controversy. Lassell, with his beautiful reflector established at Liverpool, was the first to detect a satellite of Neptune, and contests with the Bonds at Cambridge, Mass., the honor of the discovery of Hyperion, the 7th in order of the satellites of Saturn. At the private observatory of George Bishop, Esq., in Regent's park, London (1836), J. R. Hind, Esq., has labored since 1844 with great success. To these may be added Admiral Smyth's observatory at Bedford, now dismantled; Sir John Herschel's late establishment at Feldhuysen, Cape of Good Hope; and those of Messrs. Carrington, Dawes, Cooper, and others.—According to John Quincy Adams, there were 130 astronomical observatories in Europe in 1825, while in the United States there were none prior to 1830. That enlightened statesman, in his first presidential message (1825), strongly urged upon congress the establishment of a national observatory; but the project met with general disfavor and ridicule. The first telescope used in this country for astronomical purposes was set up in 1830 at Yale college. The first observatory building was erected in 1836 at Williams college, Mass., by Professor Hopkins. Two years later the Hudson observatory was organized in connection with the Western Reserve college, Ohio, Prof. Loomis director. About the same time the high school observatory at Philadelphia was established, which introduced a class of instruments superior to any before employed. In the hands of Messrs. Walker and Kendall, says Prof. Loomis, in his "Recent Progress of Astronomy in the United States" (New York, 1851), it became celebrated not only in America, but also in Europe. It was rebuilt with the high school in 1854. The West Point observatory, under the care of Prof. Bartlett, and the national observatory at Washington, under the superintendence of Lieut. Maury, soon followed. At Georgetown, D. C., an observatory was erected in 1844, and about the same time that at Cincinnati began operations with instruments of admirable performance. Here Prof. Mitchel, to whom the observatory owed its existence, has made a number of interesting discoveries, and has performed a valuable service by the remeasurement of Struve's double stars south of the equator. The corner stone of the building was laid in 1843 by the venerable John Quincy Adams. The observatory at Cambridge, established a year or two later, is furnished with one of the best equatorials in the world. By means of it Messrs. William C. and George P. Bond have added to the treasures of astronomical science a new satellite of Saturn, already alluded to; the fact of the semi-transparency of the inmost zone of the ring of the same planet; the conjecture, established by Prof. Peirce's demonstration, of the fluidity of the ring; improved accounts of the nebulæ; and observations of new planets, and of the satellites of Saturn, Uranus, and Neptune. At Ann Arbor, Mich., an observatory has been established (1854) on a very liberal scale, chiefly through the exertions of Chancellor Tappan of the university of Michigan. Dr. F. Brünnow is its able director. The most recent establishment of the kind is the Dudley observatory at Albany, Prof. Mitchell chief director since 1859. (See DUDLEY, CHARLES EDWARD.) In addititon to the foregoing, celestial telescopes have been set up at Nantucket, Mass., where Miss Maria Mitchell has won a European fame; near Darby, a few miles from Philadelphia, by the late John Jackson; at Tuscaloosa, Ala.; at Charleston, S. C., by Prof. Lewis R. Gibbes; at New York city by Mr. Rutherfurd, and another by Mr. Campbell; at Newark, N. J., by Mr. Van Arsdale; at Philadelphia, by the Friends; at Amherst college; at Dartmouth college, due chiefly to the munificence of George C. Shattuck, Esq., of Boston; at Hamilton college; and at the Packer institute for young ladies in Brooklyn, L. I.—Apart from the more elevating uses of the astronomical observatory in widening the boundaries of knowledge and in offering to the contemplation of mankind the most exalting views of nature, there are many considerations fitted to commend it to the attention of a commercial people. 1. It furnishes the only sure means of determining time with precision, and of accurately correcting chronometers, which are almost exclusively relied on at sea for ascertaining the longitude from day to day. 2. By extending a knowledge of the heavenly bodies, which are the unchanging beacons of the mariner on every water, it directly contributes to the security of commerce. 3. Its great office being to bring to light new truths, it is a living testimony against the contented retailing of other men's ideas, and thus stimulates the spirit of invention, discovery, and commercial enterprise, no less than of educational reform.

OBSIDIAN, lava that has become glassy by rapid cooling. It is usually composed of feldspar, or that mineral and augite, but sometimes of others also. Its peculiar characteristics are its glassy lustre, high polish, and hardness sufficient to scratch glass. It occurs in immense quantities about volcanoes, active or extinct, and was known to the ancients. The Greeks called it *οψιανος λιθος*, as is supposed by some from *οψις*, in allusion to its translucence. Pliny, however, derives its name from one Obsidius, who is said to have brought it from Ethiopia. It was used by the ancients for mirrors, and for various ornamental purposes. It is the material which the Mexicans used under the name of *itztli* for their knives, razors, and serrated weapons, and implements with which they fashioned the alabaster and other stone work of their buildings. The pointed fragments were made into arrows, specimens of which as well as of their knives are to be seen in the collection of the New York lyceum of natural history, and in that of Columbia college. The stone has been used for ornamental purposes, particularly as mourning jewelry, and is esteemed chiefly on account of its high polish; but by reason of its brittleness it requires to be worked with particular care. It is made into ear rings, brooches, knife handles, snuff boxes, &c. The iridescent variety is sometimes cut in cabochon and set in rings. This commands a high price; its color is a peculiar greenish yellow. The colors of obsidian are numerous; but each piece commonly has but one shade.

OBSTETRICS (Lat. *obstetrix*, a midwife), the art and science of midwifery, or, as Velpeau defines the word, the aggregate of knowledge relative to the reproduction of the human species. It includes the anatomy, physiology, pathology, and therapeutics peculiar to women, together with the science of reproduction, its phenomena, and its consequences, parturition, and puerperal and infantile diseases. Its object is necessarily complex, for it appertains to two beings at the same time. It consequently has a double mission: 1, to render possible, easy, and regular, exempt from all abnormal suffering and all danger, the accomplishment of the numerous functions which affect directly or indirectly generation from birth to the age when the procreative faculty becomes natural to the human female; 2, to direct and defend from all harm the delicate and precarious health of the infant during its early period of existence, and particularly during lactation. Thus far it appertains to medicine. But the operative duties of obstetrics are of a surgical character. Labor is a natural function, and happily the intervention of art is rarely demanded, so that no great amount of knowledge is necessary to assist as an intelligent spectator a spontaneous and happy parturition. But to foresee, prevent, or remove all possible dangers, to overcome serious obstacles when they exist, to resolve the many difficult and trying questions that may arise, demand not less acquirement or less judgment than the other departments of medicine. The important part which woman takes in generation consists in successive acts which are accomplished in her. One of the germs or ova, enclosed in the appropriate organ, the ovary, undergoes, after sexual intercourse, a modification by which it receives the power to grow and develop itself. This modification constitutes fecundation. The ovum is soon after transported to a hollow organ, the uterus. This organ, undergoing remarkable changes, retains the fecundated product, and furnishes it the indispensable materials for its nourishment and growth. This product itself gradually becomes a being like that from which it emanates, that is to say, first an embryo, and next a fœtus, when it acquires all the necessary powers for exterior life. This succession of the various phenomena constitutes gestation or pregnancy. When these powers are acquired, the new being is expelled by a spontaneous action of the same organ which has contained, protected, and nourished it; and during this expulsion, known by the name of labor or parturition, in order to come to the light, it is obliged to traverse a complex and resisting cavity, the pelvis, which is not accomplished without pain. But still another tie attaches the new being to the maternal organization, even after its birth, for it still requires for some time the aid of the breasts, organs designed only for this function, which furnish the necessary elements for its nutrition. This last act is lactation. The development of these phenomena is preceded and prepared for by particular modifications which the ovarian vesicles undergo. A bloody periodical discharge, called menstruation, of which the uterus is the source, ordinarily coincides with this modification of the ovarian vesicles.—This brief exposition of the principal and successive phenomena of generation in woman, proves that obstetrics includes: 1, anatomy, the organs which concur to the execution of the acts above described; 2, the physiological phenomena, the mode in which these acts are performed; and 3, the pathology of these organs. As regards the anatomy, it is sufficient here to say, that the female organs subservient to generation are the ovaries, the principal function of which is the secretion of the ovule or female germ; the Fallopian tubes, designed to receive the ovule and conduct it into the cavity of the uterus; the uterus or womb, a kind of receptacle, whose office it is to contain the fecundated germ during its period of development, and to expel it immediately afterward; and finally the vagina, a membranous canal extending from the neck of the uterus to the external organs. Most of these organs are situated within a large cavity, the walls of which are composed of bones and soft parts; this is termed the cavity of the pelvis. The functions of these organs are menstruation, conception, gestation or pregnancy, and labor or parturition. These functions are limited to certain periods of life, *i. e.*, from about the 15th to the 45th or 48th year. Some few girls, however, menstruate as early as the 11th, and some women as late as the 54th year. The generative faculty in women coincides with the function of menstruation. The earliest age at which pregnancy is positively known to have occurred is 11 years. The latest period at which parturition at the full term of gestation is satisfactorily known to have taken place is probably 54 years. The most prolific period, according to Dr. Bland, is between the ages of 26 and 30 years. The signs of pregnancy may be divided into two classes: 1, those which result from the derangement of some functions, as suppression of the menses, nausea and vomiting, mammary pains, vitiated tastes, &c.; 2, those which are to be detected only by a physical examination, as the change of color around the nipple, called the areola, the enlargement of the abdomen, the movements of the fœtus, the position of the uterus in the abdomen, *ballottement* or repercussion, and the signs derived from auscultation, and those ascertained by touch, of the change in form, density, and position of the neck of the womb. There are some diseases which may give rise to an unjust suspicion of the existence of pregnancy, particularly those that produce enlargement of the abdomen. The chief of these are spurious pregnancy, a very curious and not very infrequent phenomenon, ovarian dropsy and dropsy of the abdomen, fibrous tumors and large polypi of the uterus, enlargement of the liver, kidney, spleen, &c., and distention of the cavity of the uterus with blood, water, or air.—It is usually admitted that the ordinary duration of pregnancy is 10 lunar months, or about 9 calendar months, or from 274 to 280 days. It has however long been a disputed point whether gestation may not be protracted beyond this point. The weight of authority is now in favor of the opinion that it may in some instances be prolonged to the 300th and even the 306th day. The abrupt termination of pregnancy by the premature expulsion of the product of conception is of frequent occurrence, the number of mothers who pass through the child-bearing epoch of life without aborting once or oftener being small. The expulsion of the ovum may take place at any period of gestation. When it occurs during the first 16 weeks, it is termed an abortion; when between the end of this period and the 28th week, a miscarriage; and when after the latter period, but before the completion of the full term, a premature labor. It may be stated as a general law, that when the fœtus is expelled before the 28th week of pregnancy, it either dies immediately or soon after birth. The causes of abortion, miscarriage, and premature labor are very numerous, but they may be classified under 5 heads, viz.: 1, the accidental; 2, some deranged state of the mother's health; 3, some disease of the uterus or its appendages; 4, some disease of the embryo or fœtus or its membranes; 5, when induced for criminal purposes, or as a necessary therapeutic measure to preserve the life of the mother. The danger to the life of the mother depends somewhat upon the period when the abortion or miscarriage occurs. In the 1st or 2d month, the ovum with its appendages generally escapes without producing any noticeable illness. In the 3d and 4th months there is often considerable danger from hæmorrhage. The danger then becomes lessened after the 5th month. The cause of the abortion or miscarriage must also influence the prognosis. Thus, when it originates from some slowly operating maternal or fœtal disease, it is attended with much less serious consequences than when it is produced suddenly by an accident or by the exhibition of some irritating medicines, or by puncturing the membranes. Tardieu reports 34 cases of criminal abortion, in which the death of the mother resulted in no fewer than 22. So, too, an abortion occurring during the progress of an acute inflammation of the lungs, brain, heart, liver, or bowels forms a highly dangerous complication.—The condition of pregnancy produces different results on the maternal system, according to the constitution and peculiarity of the individual. Occasionally, it results in a salutary change in the entire system, better health being then enjoyed than at any other period. In a majority, however, it induces disagreeable symptoms, amounting merely to discomfort in some individuals; in others, so great as to injure the health and even destroy life. The diseases of pregnancy have been ranged under the following heads, viz.: lesions of digestion, as anorexia or loss of appetite, vomiting, sometimes so persistent as to destroy life, constipation, diarrhœa; lesions of the circulation, as plethora, hydræmia, varices, hæmorrhoids; lesions of the secretions and excretions, as ptyalism, albuminuria, anæmia, leucorrhœa, dropsy of the cellular tissue, dropsy in the great cavities of the body, dropsy of the amnion (a morbid collection of water in the uterus); lesions of locomotion, as relaxation of the pelvic articulations, inflammation of the pelvic articulations; lesions of innervation, as modifications of the organs of sense, blindness, deafness, vertigo, syncope, pruritus of the vulva, and displacements of the uterus.—Labor or parturition is that function which consists in the spontaneous or artificial expulsion of a viable fœtus through the natural parts. The phenomena accompanying the performance of this function may be divided into two classes, the physiological and the mechanical. Previous to the commencement of labor, there are some precursory phenomena, indicating its approach. These appear in some cases during the last fortnight of pregnancy, in others only 5 or 6 days before labor commences. They result from the dilatation of the internal orifice of the womb. The uterus, which before extended up to the stomach, sensibly sinks lower, the mechanical obstruction to respiration is removed, the stomach is no longer oppressed, but the bladder and rectum become irritable, and locomotion is more difficult. The physiological phenomena of labor are divided into 3 stages; the 1st stage ends with the dilatation of the mouth of the womb, the 2d with the expulsion of the fœtus, and the 3d with the delivery of the placenta or after birth. The symptoms of the 1st stage are intermittent pains, resulting from the uterine contractions, discharge of a glairy mucus, formation of a bag of waters, and gradual dilatation of the neck of the womb. The pains of the 1st stage are usually borne with more impatience than those of the 2d. The cries which accompany them are sharp, and resemble those of any other species of suffering; those of the 2d stage seem to be suppressed like those of a person carrying a heavy burden. The use of the glairy discharge is to moisten and lubricate the parts over which the child has to pass, to increase their suppleness and extensibility, and make it more easy for the ovum to slide over the surfaces. Where these discharges fail to take place, the dilatation of the mouth of the womb is always more painful and slower, and the organs are more disposed to become inflamed. The name of bag of waters is given to a protuberance formed by the membranes in the upper part of the vagina during labor. During the presence of a pain, it is hard, tense, and elastic; after the contraction is over, it becomes wrinkled and contracts or disappears. It eventually breaks, sometimes early in the 1st stage, and in other cases not until late in the 2d stage, when the contained fluid escapes. The duration of labor is exceedingly variable, even when no obstacle opposes its natural course. Some women are delivered in an hour or two, while others are not for several days; and between these two extremes there is every intermediate grade. In the first confinement, the average length of labor is usually from 10 to 12 hours; but in at least one case in 5, it may not terminate under 15, 18, or even 24, and this without any injury whatever resulting either to the mother or child. Women who have had children are delivered much sooner, only suffering, in ordinary cases, about 6 or 8 hours. The duration of the 1st stage is to the 2d as 2 or even 3 to 1; but this law is subject to many exceptions. The 3d stage ought to be completed within 30 minutes.—To understand the mechanical phenomena of labor, it is necessary first to define the terms presentation and position. We designate by the term presentation the part of the child that first offers at the entrance of the pelvic cavity; and by the term position, the relations of the presenting part to the different points of the entrance to the pelvis. The attitude of the child in the uterine cavity is in a great majority of cases such that the direction of the trunk is parallel with that of the mother, and one extremity forms the most dependent part. In by far the largest proportion of cases, it is some portion of the head which first offers at the entrance of the pelvic cavity. If the head is flexed, it is called a vertex presentation. If the head is extended back, the chin far removed from the breast, it is a face presentation. When the other extremity presents, the legs are usually flexed on the thighs and the latter on the abdomen; the whole breech may therefore offer at the entrance of the pelvis, or one or both feet or knees. As the mechanism of labor must be the same in all these cases, they are all included under the term pelvic presentations. But it may happen that, instead of one of the extremities offering, some portion of the trunk may offer, the child lying transversely in the uterus, and this may be either some point of the right half or of the left half of the trunk. We have then 5 primary presentations, one of the head, one of the face, one for the pelvic extremity, one for the right lateral plane, and one for the left lateral plane. The presentation of the head is incomparably more frequent than all the others. According to Mme. Boivin, in 20,357 cases it occurred in 19,730. The fœtus presents by the face, on an average, once in 250 labors. The pelvic presentation occurs once in 30 or 35 labors. The trunk presentations are a little less rare than the face, occurring about once in 200 cases. As a law it may be stated that trunk presentations always demand the interposition of art to accomplish delivery. The other presentations generally terminate spontaneously. In order that a labor may terminate without foreign aid, a considerable number of conditions are required. On the part of the mother, there must be no fault or deformity of the pelvis, no serious affection of the womb, and the organ must possess a certain energy; the general powers of the system must not have been exhausted either by a profuse hæmorrhage or any long continued disease; there must be no affection making it dangerous for the woman to give herself up fully to the efforts that she is compelled to make; and no accident must supervene during the labor. On the part of the child, it is important that it should descend with the head, the face, the feet, the knees, or the breech foremost, and that it should not be of a size disproportionate to the capacity of the pelvis. About one case in 80 requires in some form artificial aid to complete a happy delivery for the mother and child.—The obstetric operations required for cases of difficult and dangerous labor, either to save the life of the mother or child or both, are: 1, induction of premature labor, an operation of great importance and value in certain cases; 2, version or turning, that manual operation by which one presentation is substituted for another less favorable; 3, the vectis, to correct malpositions or aid the natural rotations of the head; 4, delivery by forceps; 5, craniotomy, an operation by which the life of the child is sacrificed in order to save the mother; 6, the Cæsarean section, in which the child is extracted through an incision in the walls of the abdomen and uterus. The dangerous complications which may arise in connection with labor are: prolapse of the cord or funis, an accident very fatal to the child; flooding or hæmorrhage; retention of the placenta; convulsions; rupture of the uterus; lacerations of the vagina or perineum; and inversion of the uterus.—The progress of obstetrical science and the improvement in the art have been very marked within a few years past. We have no means of knowing what proportion of women formerly died in childbirth. According to Tanner, "the 20th annual report of the registrar-general of births, deaths, and marriages in England, shows that in the year 1847 the birth of every 10,000 living children was the death of 60 mothers, whereas in 1857 it was only fatal to 42; hence 18 mothers are now saved in every 10,000 children born. Since 1848 the decline has been progressive, the numbers per 10,000 being 61, 58, 55, 52, 47, 47, 44, and 42 in 1857. That this happy result is not accidental, but is in a great measure due to the progress of science, cannot be doubted." Among the most striking modern improvements in obstetrical science and practice, may be mentioned the application of auscultation to obstetrics; a more perfect knowledge of the mechanism of labor, and of the management of placenta prævia; the introduction of chloroform; the induction of premature labor; an increased frequency in the use of the forceps, and a less frequent resort to craniotomy; and the substitution of version in some cases, where either craniotomy or the long forceps were formerly employed.

OCCAM, or **Ockham, William**, an English scholastic philosopher, born in the village of Occam, in Surrey, in the latter half of the 13th century, died in Munich, April 7, 1847. He was educated in Merton college, Oxford; refused in 1300 the archdeaconry of Stowe; obtained in 1802 the first prebend of Bedford, and in 1305 that of Stowe, which he resigned in 1319; and after 1822 was provincial of the Franciscans in England. He was expelled from Oxford for exciting tumults among the students, and repaired to Paris, being already eminent for erudition and scholastic subtlety. He joined the Franciscans, was a disciple of their chief Duns Scotus, and, having become a public teacher as professor of theology in the university of Paris, was immediately recognized as the head of the party which was assailing at once the traditions of politics, religion, and philosophy. He was styled "the invincible doctor," revived the doctrine of nominalism, and undertook the advocacy of King Philip the Fair in his contest with Pope Boniface VIII, maintaining the independence of princes in secular affairs. At Perugia in 1822 he argued that Christians neither individually nor in community should be the possessors of property. His manifesto, entitled *Disputatio super Potestate Ecclesiastica Prælatis atque Principibus Terrarum Commissa*, was condemned by the pope; but, supported by Michel of Cesena, general of his order, he continued vehemently to assail the practices of the holy see. Summoned with his disciples in 1828 by Pope John XXII before the court of Avignon, he escaped from penalty for his opinions by a precipitate flight to the court of the emperor Louis the Bavarian, who received him with the greater favor in consequence of his own quarrel with the pope. There he remained till his death, supporting the cause of the emperor against the papal claims, and saying to his associates: *Tu me defendas gladio, ego te defendam calamo.* He was in his age the champion of the Franciscans and the nominalists against the Dominicans and the realists. He caused the weight of ability, during the later and less flourishing period of scholasticism, to be with brief interruptions on the nominalist side. By denying the objective existence of universal conceptions, and maintaining that knowledge was subjective, he exposed himself to charges of scepticism and empiricism, which his opponents more than once successfully availed themselves of. Yet he threw off the despotism of scholastic dogmas, and introduced into philosophy a wider range and a freer spirit. In theology he rejected the scholastic proofs of the divine existence and attributes, which he regarded as matters of faith alone. Yet he proposed as a sufficient proof of the being and agency of God the fact of the continuance of all things in their original state. In psychology he refuted the current hypothesis of objective images which were deemed necessary to a theory of perception. In ethics he adhered to the Scotist doctrine that the ground of morality is the subjective will of God. His philosophical writings are: *Super Libros Sententiarum Subtilissimæ Quæstiones* (Lyons, 1495); *Quodlibeta Septem* (Paris, 1487); *Summa totius Logicæ* (Venice, 1591); *Quæstiones in Libros Physicorum* (Strasbourg, 1491); and *Expositio Aurea super totam Artem Veterem, videlicet in Porphyrii Prædicabilia et Aristotelis Prædicamenta* (Bologna, 1496).

OCCOM, Samson, an Indian preacher, born in Mohegan, New London co., Conn., about 1728, died in New Stockbridge, N. Y., in July, 1792. When 19 years old he entered the Indian school of Mr. Wheelock at Lebanon, and remained there 4 years. In 1748 he kept a school in New London, but shortly after removed to Montauk, Long island, where he taught and preached to the Indians. In 1766 Mr. Wheelock sent him to England as an agent for Moor's Indian charity school. Being the first Indian preacher who had visited that country, he was successful in attracting large audiences and obtaining donations. After his return to America, Occom preached at various places, passing his latter years within the bounds of the Albany presbytery. He wrote an account of the Montauk Indians, still in MS., and published a sermon on the execution of an Indian at New Haven in 1772.

OCCUPANCY, the possession of property. Property is acquired either by the natural or by the civil or positive law. The latter system determines the modes of derivative acquisition. Original acquisition must have been founded upon the law of nature. "That which belongs to no one," says Gaius, "is given by natural reason to him who takes possession of it; that is to say, to the occupant." Occupancy may therefore be defined as the title by which one acquires the property in an unowned thing by taking possession of it with the intention of appropriating it to his own use. Three elements are here to be observed: 1, that the thing to be acquired be *res nullius*, the property of no man; 2, that it be taken by the acquirer *corpore*, that is, actually into his power; and 3, that he take it *animo*, or with the intention of holding it and using it as his own. The principles which the Roman law applies to the acquisition of particular things, the law of nations applies to the acquisition of territory and jurisdiction by states. By the Roman law, as we have seen, property is acquired through occupancy when that is made *corpore et animo*, that is, by an outward act signifying the intention of possession. Yet, as possession or occupation must always be adapted to the subject, and as physical contact is not always possible, but any act which imports ownership is sufficient, so a state may take possession of an entire vacant country without actual occupation of every part of it. But by a mere declaration to that effect, no state can take valid possession of territory which it cannot use and therefore does not, even constructively, occupy. Merely to set up a cross or to erect any other monument upon every coast which a navigator touches, is not to take such a possession as subsequent explorers are bound to respect. The law of nations will not acknowledge the propriety and sovereignty of a nation in uninhabited countries, unless it make actual use of them; for use most strongly imports an intention of ownership. The use which occupancy requires is of course various. Thus, provided other races do not require and demand the room, it is said that a pastoral nation may justly claim the ownership of a larger territory than one which is devoted to the pursuits of agriculture. They make a use of the land which is conformable to their mode of life; they occupy in their fashion and therefore possess the whole land, and no other nation has the right to dictate to them any other mode of using it. By this principle, if the English and French trappers and fur traders were regarded as mere hunters, the American Indians might justly have excluded them from their hunting grounds; for, as hunters, the Indians had the prior and superior right of occupancy. But as the newcomers were the forerunners of a higher civilization, their establishment of forts and trading stations, though a form of possession but little superior to that of the Indians, yet implied a more complete occupation, and, so far as the lands were needed by the whites, defeated at least the exclusive Indian use. Certainly, as against future settlers and other nations, this mode of occupancy of the traders gave them a preference; because it was then the only practicable exercise of proprietary acts, and indicated sufficiently that a beneficial use was intended to be made of the whole region through which their traffic was in this way extended. On these principles Great Britain claimed that the establishment of a few trading factories on the shores of Hudson's bay gave its subjects an exclusive right by occupancy as far as the Rocky mountains. As then the beneficial use is the criterion of occupation, this will vary with the character of the territory to be acquired. The occupation which we have just considered differs as widely from a pastoral as that does from an agricultural occupation; and the extent of contiguous country to which an actual settlement gives prior right will differ in all these cases. In regard to agricultural colonies like those on our Pacific coast, it has been argued in diplomatic correspondence with Great Britain that much depends on the magnitude and population of the settlement, and on the facility with which the vacant adjacent land may within a short time be occupied, settled, and cultivated by such population, compared with the probability of its being occupied and settled from any other quarter.—The principles of occupancy have a partial application in the American doctrine of preëmption. Our preëmption laws are expressly framed with the intention of giving preferences in the allotment of the public lands to "settlers" and "occupants." These words have been officially construed and declared to mean those who personally cultivate and reside on, or who personally cultivate, use, and manage the public lands. In short, to constitute a settler or occupant within the meaning of these laws, the party must have a direct personal connection with the land which he claims. Residence on the land is the best evidence of this, but this is not indispensable.

When a settlement and occupation is intended to be made, and is actually made, so far as circumstances permit, the requirements of the law are satisfied. Under the existing laws, an agricultural preëmptor may enter 160 acres or a quarter section of land, provided only he make improvements and erect a dwelling house upon it. Cultivation of the whole section is evidently not a precedent condition of the settler's right. Between the moment when he turns the first sod and that when the whole claim is enclosed and brought under actual cultivation, much time must necessarily elapse. But the occupant's right is fixed by his very first act of improvement done with the intention of ownership; and if he furnish sufficient *indicia* of this intent, this right and the benefits of prior occupancy will be assured to him.

OCEAN, the great body of salt water which surrounds the continents and covers more than three fifths of the whole surface of the globe. By the configuration of the lands which rise above its surface, it is partially separated into a number of divisions, known by distinct names, as the Atlantic, Pacific, Indian, Arctic, and Antarctic oceans, for a more particular account of which reference may be made to the separate articles under those names. The last named is divided from the Pacific, not by intervening bodies of land, but by the imaginary line of the Antarctic circle. The nearly landlocked arms of the ocean are designated as seas, bays, and gulfs. All these bodies of water are united together in one great system, and are kept of nearly uniform composition, notwithstanding numerous local causes of change, chiefly by means of great currents which circulate through them. Some of these currents are of vast extent, spreading over a large part of the oceans to which they belong, and with but slight variations they move without cessation in the great system of the circulation of the waters. Some are submarine, moving in one direction, while the waters at the surface move in another. They are set in motion by differences of temperature, by planetary attraction, rotation of the earth, the trade winds, &c. Prominent among the important objects they serve, beside that already named of equalizing the quality of the sea water itself, is the effect they have upon the climates of the globe, the waters warmed by the tropical heats carrying and diffusing their elevated temperature into colder regions, and those from the arctic seas spreading, with the icebergs which they float along, a portion of the excessive cold of those inhospitable climes over the temperate latitudes. In extreme latitudes, arctic or tropic, the sea acts in various ways to moderate the excessive cold or heat. It is the chief source of the vapors that are wafted over the earth and fall in rain, feeding the rivers, which in turn yield back to the ocean its waters. —A striking feature in the ocean is its saltness. This is owing to the presence of chloride of sodium (common salt), which, with small quantities of sulphate of magnesia, sulphate and carbonate of lime, iodine, and bromide of magnesium, forms about $\frac{1}{32}$ of the total weight of the aqueous solution. The proportion of salt varies in different places, sometimes exceeding 4 per cent. It is large where the water is deepest, but does not increase with the depth. Though inland seas generally contain less salt, the Mediterranean contains more of it than the ocean itself; the specific gravity of its water east of the straits of Gibraltar has been found to be 1.0388, while that of water from the ocean west of the straits was 1.0294. The specific gravity of sea water near the equator is about 1.0277. The saline elements of the water may be derived from geological formations consisting in great part of such elements; but strata of this character always bear evidence of being deposited from ancient oceans, so that this derivation throws no light upon the real source of the salt. In different parts of the ocean various substances introduced by great rivers modify locally the composition of its waters; and from the strata beneath the sea there no doubt emanate mineral springs, such as appear upon the land. Springs of fresh water are known in many places to rise up through the salt water, and some of them even furnish supplies to vessels.—The color of the sea, commonly described as bluish green, is by no means uniform, and the reason of the changes of its hue is unexplained. In the tropics it is at one time an indigo blue, then a deep green, and again a slate gray; the clouds appear to have no influence in producing these changes. Upon some coasts a reddish or purplish hue is apparent, and elsewhere the water appears black, or white, or beautifully transparent. In the fiords on the coast of Norway the crystal clearness of the water is wonderful; at the depth of 20 or 25 fathoms small objects may be discerned upon the sandy bottom, apparently magnified by the water itself.—The depth of the ocean is very uncertain, and has been greatly overrated. The difficulties of deep sea soundings are referred to in the article ATLANTIC OCEAN; and they are of such a nature that little dependence can be placed on results exceeding 2,000 fathoms or 12,000 feet. Lines have been run out several miles, but the weights used could scarcely have drawn them down more than a mile and a half on account of the friction of the lines through the water. Currents of water at different depths act upon them, and carry them off from a vertical course. From calculations made by officers of the U. S. coast survey, based on observations of the time in which waves raised by an earthquake in Japan on Dec. 23, 1854, were transmitted to San Francisco and San Diego in California, the mean depth of the Pacific would be from 2,100 to 2,500 fathoms. With the depth the pressure increases at the rate of about 15 lbs. to the inch in every 34 feet. The water however is so little compressible, that the comparative weight of any body and of the water at different depths remains very nearly the same; what would sink therefore near the surface should continue to sink at all depths. The pressure, however, becomes enormous far below, and porous bodies, as wood, which are sunk and drawn up, are entirely saturated with water, which, taking the place of the lighter air that filled them, causes the wood to sink. Soundings have proved that the bottom of the sea presents almost as irregular a surface as the land. Shoals are the more elevated plateaus in the ocean. Their surfaces slope away into the deep water, and in some localities the plummet sinks suddenly at their sides to great depths. The slopes of precipitous mountains in the sea, as those of St. Helena, are continued below the water, and at 150 feet from the apparent base of the precipitous cliffs no bottom has been found at 150 fathoms.

OCEAN, an E. co. of N. J., bordering on the Atlantic, and drained by Metetecunk and Tom's rivers and several creeks; area, about 550 sq. m.; pop. in 1860, 11,209. A sand beach from ⅓ to 1 m. wide extends along the coast, and between it and the mainland are two lagoons, Barnegat bay and Little Egg Harbor inlet. The surface is level, and much of it covered with pine forests; the soil is light and sandy. Iron is found and manufactured in large quantities in the north. The agricultural productions in 1850 were 108,474 bushels of Indian corn, 22,088 of rye, 38,219 of potatoes, 6,679 tons of hay, and 78,059 lbs. of butter. There were 5 grist mills, 16 saw mills, 19 charcoal works, 22 churches, and 2,189 pupils attending public schools. Capital, Tom's River.

OCEANA, a W. co. of Mich., on Lake Michigan, drained by White and Maskego rivers; area, 780 sq. m.; pop. in 1860, 1,766. It has an undulating surface and a good soil. Capital, Lackeminto.

OCEANIA, or OCEANICA, a name given by geographers to a fifth division of the world, which includes all the islands of the Pacific between Asia, the Indian ocean, the Antarctic ocean, and America. It comprehends the Indian archipelago, Australasia, and Polynesia.

OCEANIDS, in Grecian mythology, a class of nymphs, daughters of Oceanus and Tethys. They were 3,000 in number, and were said to have an equal number of brothers.

OCEANUS, a Grecian divinity, god of the water, which was believed to encircle the whole earth. According to Hesiod, he was the son of Uranus and Gæa (Heaven and Earth), and the eldest of the Titans.

OCELLUS LUCANUS, a Pythagorean philosopher, born in Lucania in Italy, and supposed to have flourished in the 5th century B. C. The works attributed to him were: "On Law," "On Kingly Rule and Piety," and "On the Nature of the Whole," the last of which, originally written in the Doric dialect, is the only one that has come down to us. This treatise, which Tennemann pronounces apocryphal, is divided into 4 chapters, in which he maintains that the whole (*το παν*) has no beginning nor end, and that men have always existed. The best editions are by A. F. W. Rudolphi (Leipsic, 1801-'8), and Mullach (Berlin, 1846). Ocellus was translated into English by Thomas Taylor in 1831.

OCELOT, an American group of medium-sized cats, of slender and elegant proportions, without tufts to the ears, and with more or less elongated and connected spots diverging in longitudinal rows backward and downward from the shoulders, of a yellowish color bordered with black. The common ocelot (*felis pardalis*, Linn.) is about 3 feet long to the base of the tail, the latter being about 15 inches additional; the general color is grayish, with large fawn-colored, black-bordered spots forming oblique bands on the flanks; ears black, with a white spot below; chin and throat white, with a black bar beneath the former and another under the neck; 2 black lines on the side of the forehead and 2 behind each eye; under surface white, with irregular black patches; tail above black, with narrow bands of white. Specimens vary much in their markings, in the tinge of the tawny spots, in the chain-like character of the streaks, and in the spots and blotches on the legs. It is found in Brazil and Guiana, and in Mexico, Texas, and the south-western United States. The head is short, the neck long and thin, the body slender, tail moderate, and hair soft and not very thick. It is called leopard and tiger cat in Texas and Mexico, is rather nocturnal in habit, and climbs trees in pursuit of small animals and birds; though active and muscular, it is easily tamed, and is gentle and playful in captivity, unless fed on raw meat exclusively; it is very graceful and quick in its movements, and when pursued takes to a tree; it is seldom seen on the open plains, preferring woods and thickets. From its small size, it is little to be feared by the herdsman; but from the beauty of the skin, which is worth about $2, it is always killed when an opportunity occurs. In the linked ocelot (*F. catenata*, H. Smith), by many considered a mere variety of the last, the markings are more lengthened, the ground color more reddish, and the body and limbs stouter. The long-tailed ocelot (*F. macroura*, Neuwied) is often grayish tawny yellow, paler below, with irregular unenclosed longitudinal markings on the body; of a total length of 44 inches, the tail forms about 19, and is semi-annulated, black at the tip. Another allied species, inhabiting, like all the above, South America, is the margay (*F. tigrina*, Linn.); it is 18 inches long, with a tail of 8 inches; the color is tawny yellow, with black lines and bands upon the head, neck, and throat; the open spots of the body enclose a reddish centre, and are surrounded by a black line; the limbs are spotted and the tail ringed with black.

OCHRA. See OKRA.

OCHRE, earthy oxide of iron employed with oil as a paint. When obtained as a native product it is intermixed with argillaceous or calcareous earth; and it is also prepared by the decomposition and oxidation of pyritous ores. Deposits of it are produced about springs that flow from rocky beds which contain iron pyrites in a state of decomposition. The color of the material varies with the degree of oxidation of the iron, and may be changed by heat from yellow to brown and red. The earthy matters present also affect its color, and these may be partially or wholly removed by washing, the heavy sediments remaining behind. For the finer varieties of ochre these sediments are ground in mills. Ochres are sold under a variety of names. The coarser sorts are sometimes known as stone ochres. A kind from the Persian gulf is called Indian red. There are also the Spanish brown, a yellow variety known as the French ochre, the Oxford and Roman ochres of brownish yellow colors, and others distinguished merely by the names of their colors. Dr. Thomson states that the term ochre is applied to native oxides of cerium, molybdenum, lead, tungsten, chromium, and uranium.

OCHTERLONY, Sir David, a British general, born in Boston, Mass., Feb. 12, 1758, died in India, July 15, 1825. At the age of 18 he entered the service of the East India company, became lieutenant in 1778, and rose through the intervening grades to the rank of lieutenant-colonel in 1803. After the conclusion of the Mahratta war of 1803-'4, he was appointed to the command of the fortress of Allahabad, in 1812 was made colonel, and in 1814 major-general. In the Nepaulese war he captured the almost inaccessible fortress of Mallown, and, receiving the chief command, brought the war to a close in March, 1816. For his services he was made knight commander of the bath, was created a baronet, and received from the East India company a pension of £1,000 per annum. In 1817 he also received the thanks of both houses of parliament for his conduct in the Nepaulese war, and, after having served in various other important posts, was appointed in 1822 resident and political agent at Rajpootana.

OCKLEY, Simon, an English orientalist, born in Exeter in 1678, died in Swavesey, Cambridgeshire, Aug. 9, 1720. He was educated at Queen's college, Cambridge, in 1705 was presented to the vicarage of Swavesey, and in 1711 chosen professor of Arabic in the university of Cambridge. His principal work, compiled from Arabic MSS. in the Bodleian library at Oxford, was a "History of the Saracens" (2 vols. 8vo., 1708-'18). He dates the 2d volume from Cambridge castle, where he was imprisoned for debt. This work has a high reputation, and has been often reprinted. A good edition of it is published in Bohn's "Standard Library" (London, 1848). His other works are: *Introductio ad Linguas Orientales* (1706); "History of the Present Jews throughout the World," translated from the Italian of the Jewish scholar Leo Modena (1707); "The Improvement of Human Reason, exhibited in the Life of Hai Ebn Yokdhan," from the Arabic (1708); "An Account of South-West Barbary" (1713); and a new translation from the Arabic version of the second "Apocryphal Book of Esdras" (1716).

OCMULGEE, a river of Georgia, about 200 m. long, formed by 3 branches, the South, Yellow, and Ulcofauhachee, which rise in the N. part of the state and unite at the S. corner of Newton co. It flows in a S. S. E. direction till toward its termination, when it sweeps round in a curve to the N. N. E. and joins the Oconee at the S. extremity of Montgomery co., where the two form the Altamaha. It receives the Little Ocmulgee, its principal tributary, about 10 m. from its mouth. It is navigable for steamboats of light draught to Macon, where there is a fall affording great water power.

OCONEE, a river of Georgia, which rises in Hall co., in the N. E. part of the state, and flows in a S. S. E. direction until its junction with the Ocmulgee to form the Altamaha. Its total length is about 250 m., and it is navigable for small steamers to Milledgeville, 100 m. above its mouth.

O'CONNELL, Daniel, an Irish orator, politician, and agitator, born at Carhen, near Cahirciveen, county of Kerry, Aug. 6, 1775, died in Genoa, May 15, 1847. He was the eldest son of Morgan O'Connell, a Catholic gentleman whose family was of very ancient and respectable standing in the south of Ireland, and who lived in seclusion on a small estate amid the romantic wilds of Kerry. A poor old hedge schoolmaster named David Mahony taught Daniel the alphabet, and at the age of 13 the boy was sent to a school at Redington, Long island, near Cove, or Queenstown as it is now called. Here he remained about a year without giving much indication of superior talents, and in 1791 was sent to the Jesuits' college of St. Omer in France. The principal of this institution wrote of him at the end of a year: "I never was so much mistaken in my life as I shall be, unless he be destined to make a remarkable figure in society." In the following year O'Connell spent a short time at the English college of Douay; but the outbreak of the reign of terror compelling him to leave France, he returned home, and in 1794 entered himself as student of law at Lincoln's Inn, the penal laws against Catholics having been somewhat modified during his absence, and the legal profession having been thrown open to persons of that creed. Four years afterward he was called to the bar, and soon became distinguished as a brilliant and successful advocate. He kept aloof from politics at this time, and had no sympathy with the violent revolutionary spirit of the period, which in fact through all his life he opposed, in accordance with his well known saying that "he would accept of no social amelioration at the cost of a single drop of blood." His first political speech was made at Dublin, Jan. 13, 1800, at a meeting of Catholics held to petition against the proposed legislative union between Great Britain and Ireland; the meeting was broken up by the intervention of the military. From this period dates the commencement of his career as a public agitator. In 1802 he married his cousin Mary, daughter of Dr. O'Connell of Tralee, and in a few years was in good practice and had gained a high reputation as a barrister. He now became gradually absorbed in politics, and was soon the acknowledged leader of political reform in Ireland. He devoted himself with surprising force and energy to the Catholic question as it was called, that is to say, the question of the claims of the Roman Catholics of Ireland to political equality with Protestants. Alluding to this period of his life in a pamphlet published in 1842, he says: "For more than 20 years before emancipation, the burden of the cause was thrown upon me. I had to arrange the meetings, to prepare the resolutions, to furnish replies to the correspondence, to examine the case of each person complaining of practical grievances, to rouse the torpid, to animate the lukewarm, to control the violent and the inflammatory, to avoid the shoals and breakers of the law, to guard against multiplied treachery, and at all times to oppose at every peril the powerful and multitudinous enemies of the cause. At that period, and for more than 20 years, there was no day that I did not devote from one to two hours, often much more, to the working out of the Catholic cause, and that without receiving or allowing the offer of any remuneration, even for the personal expenditure incurred in the agitation of the cause itself." In 1815 Mr. O'Connell, having in one of his speeches applied the term "beggarly" to the corporation of Dublin, was challenged by Mr. D'Esterre, a member of the city government. A duel ensued, and D'Esterre received a wound of which he ultimately died. For this event he ever afterward expressed the deepest sorrow, and never again accepted or offered a challenge. In 1828 the agitation of the Roman Catholic emancipation bill reached its greatest height under the direction of the Catholic association. In June of that year Mr. O'Connell became a candidate for the representation of the county of Clare in parliament, and was elected by a large majority. On proceeding to take his seat, he refused as a Roman Catholic to take the test oaths which had been framed for the express purpose of excluding those who held his faith. His firm attitude on this point commanded general attention, and led to protracted and animated discussions both in parliament and before the people. The agitation in Ireland, under his skilful guidance, rose to such a formidable height that at length the great leaders of the conservative and Protestant party, Sir Robert Peel and the duke of Wellington, became alarmed and resolved to concede emancipation to the Catholics. Parliament met Feb. 6, 1829; the speech from the throne recommended a final, equitable, and satisfactory adjustment of the Catholic claims; in the course of the session the last of the civil disabilities to which the Catholics had been so long subject were repealed; and in May Mr. O'Connell took his seat as a member of parliament. He was received by the house with marked coldness, and was both disliked and feared. In the course of time, however, he commanded the respect and admiration of his audience, and became one of the most attractive of parliamentary orators. In 1830 he declined the representation for Clare, and was elected by his native county of Kerry. Subsequently he represented Dublin from 1832 to June, 1835, and again in 1837. In the latter part of 1835 he was elected for Kilkenny, and in 1841 for the county of Cork, and in the same year lord mayor of Dublin. To keep alive the spirit and activity of his followers, which seemed likely to subside with the removal of the Catholic grievances, O'Connell proclaimed during his first year in parliament, that a repeal of the legislative union between Great Britain and Ireland was the only means of obtaining justice for the latter kingdom. Though he steadfastly maintained this position for the rest of his life, he does not seem to have had any expectation that the repeal would ever be effected, but used the agitation of it as a weapon with which to menace the English government and coerce it into measures of amelioration. To compensate him for the loss of income he had suffered by relinquishing his practice as a lawyer, and to reward his public services, an annual subscription was organized among the Irish people, under the denomination of "rent," and paid to Mr. O'Connell, a proceeding which involved him in much obloquy. In 1842 and 1843 immense gatherings, or monster meetings as they were called, were held by the repealers on the royal hill of Tara, the Curragh of Kildare, the Rath of Mullaghmast, and other places renowned in Irish history and in the songs and traditions of the people. Some of these assemblages were estimated at 500,000 persons, and nothing was spared to make them imposing in appearance as well as in numbers. The liberator, as O'Connell was now familiarly called, appeared at them, making speeches of the most violent and exciting character, but taking extreme care in action to keep his followers within the bounds of law. At length he called a monster meeting at Clontarf near Dublin on Sunday, Oct. 8, 1843; and the preparations for it, including a body of "repeal cavalry," had such a military air that the government thought it time to interfere. On Oct. 7 a proclamation was issued declaring the public peace to be endangered by these meetings, and warning all persons to keep away from Clontarf. O'Connell, who with all his violence of language was ever anxious to keep the peace, countermanded the meeting, and the people generally stayed away. On Oct. 14 he was arrested by order of the government, together with his son and 8 of his coadjutors, on charges of conspiracy, sedition, and unlawful assembling. They were tried in the following February, and found guilty. O'Connell was sentenced to imprisonment for 12 months and to pay a fine of £2,000, and was bound over to keep the peace for 7 years. An appeal was made to the house of lords, and the decision of the Irish judges was reversed. This trial, however, gave a deathblow to the repeal association and the repeal movement, though for a while the monster meetings continued and the agitation for repeal was actively kept up. But very soon dissensions broke out between O'Connell and some of his associates who formed the party of "Young Ireland," who scoffed at his renunciation of physical force in seeking political reforms and were impatient for insurrection and war. A severe blow was struck at him in 1845, when it was shown by a thorough and careful investigation that, while holding forth against oppression in public, and drawing from the contributions of the peasantry a princely income on the ground of his exertions in behalf of their freedom and prosperity, he was himself a middleman, holding land on low leases from the landlord, and gaining profits out of a tenantry in "a lost, wretched, and neglected condition." He was furious at the exposure, but the facts were proved against him. He grew anxious and feeble and at length ill, and had to abandon political agitation altogether, to which indeed the famine now creeping over Ireland put a sudden stop. The distress of his country painfully augmented his own sufferings, and at length his physicians directed that newspapers should be kept from him and no one admitted to his presence who would speak of Ireland. Early in 1847 he set out on a pilgrimage to Rome, hoping to die at the holy city and under the blessing of the pope. But he sank too rapidly for this. He was carried to Paris and Marseilles, and lastly to Genoa, where he died. At his own request his heart was embalmed and carried to Rome, and his body taken back to Ireland, where it received a magnificent funeral.—Alison, the tory historian, who was once examined for 8 hours by Mr. O'Connell before a committee of the house of commons, thus describes his person and character: "In appearance he was striking; he would have been remarked among a thousand. His countenance was neither handsome nor commanding, but it had something in it which irresistibly attracted the attention. Strong and square-built, his figure conveyed the idea of great personal strength; quick, but evasive, his eye gave the impression of Jesuitical cunning. He scarce ever looked you in the face. In manners he was, when he chose, extremely pleasing; none could exhibit when he desired it more courtesy, or was a more agreeable companion; and none, when otherwise inclined, could let fly a more fearful volley of vulgar abuse. . . . He belonged to the age of Ignatius Loyola or St. Francis rather than that of the French revolution. Pope Hildebrand was not more devoted to the interests of the holy see; Peter the Hermit did not possess in a higher degree the art of rousing and violently moving the great body of the people. His abilities were of a very high order—no man does such things without great powers; but they were not of a cast superior to his achievements. *Par negotiis, non supra*, was his true characteristic. He was born an agitator, and there he was supreme; but he was neither more nor less. He had remarkable talents, but no genius, and still less taste or refinement. To great powers of oratory he united a marvellous faculty for moving the multitude. . . . With equal facility he addressed the house of commons in a powerful legal argument, and harangued the electors of Clare in strains of disgraceful ribaldry; with equal truth he in the same breath called the Irish 'the finest peasantry upon earth,' and heaped opprobrium upon the 'stunted corporal' who had delivered Europe, and the 'base Peel' who had endangered his own fame to strike the fetters of religious intolerance in Europe."—See the "Life and Speeches of Daniel O'Connell," by his son John O'Connell, M. P. (2 vols., London, 1846).

O'CONNOR, Arthur, a leader in the Irish rebellion of 1798, born in 1763, died near Nemours, France, April 25, 1852. He was admitted to the bar in 1788, became a member of the Irish parliament, and made a speech in favor of Catholic emancipation, which so offended his uncle, Lord Longueville, that he disinherited him. Subsequently joining the united Irishmen, he became one of their directory of five, and in 1796 was arrested on a charge of high treason, but was finally discharged. Having gone to France, he was arrested again on his return, tried, and acquitted; but being held in detention he escaped, and took up his residence in France. In 1804 he was created by Napoleon lieutenant-general, and subsequently general of division. About 1809 he married the daughter of the philosopher Condorcet, whose works he is said to have edited. He published "Letters to the Earl of Carlisle, in reply to Earl Fitzwilliam's two Letters on the State of Ireland" (1795); "Letters to Earl Camden" (1798); "The Present State of Great Britain" (1804); and, under the assumed name of Condorcet O'Connor, a volume against the Bourbons and monarchy in general (1830).

O'CONNOR, Feargus Edward, a leader of the chartists in England, born at Dangan Castle, co. Meath, Ireland, in 1796, died at Notting Hill, near London, Aug. 30, 1855. Early attaching himself to the radical party, he was in 1832 returned to parliament by the county of Cork. Reëlected in 1835, he was unseated on the ground of disqualification, and from that time agitated the rights of the lower classes so constantly, in public addresses and in his journal called the "Northern Star," that he came to be regarded as the head of the chartist party, and in 1847 was elected by it to parliament from Nottingham. The failure of his efforts (see Chartism) produced an unsettled state of mind; and during a visit to America, insanity became clearly developed. While still a member of parliament, he was taken to a lunatic asylum at Chiswick, and there remained till within a few days of his death, a jury finding, on an application for a commission of lunacy in 1853, that he had been of unsound mind on and since Jan. 16, 1852. His funeral was attended by an immense concourse of his admirers.

OCONTO, a N. E. co. of Wis., bounded N. E. by Michigan, from which it is separated mostly by the Menomonee river, and S. E. by Green bay; area, 2,268 sq. m.; pop. in 1855, 1,501. It is drained by the Oconto, Pishtego, Wolf, and other rivers, and is covered with pine forests. Capital, Jones's Mill.—The Oconto river rises in the N. E. part of the state, and flowing first southward and then eastward, falls into Green bay.

OCOSINGO, a town in the Mexican state of Chiapas, 65 m. S. E. from Ciudad Real; pop. 4,000. It derives its principal interest from a series of extraordinary aboriginal monuments in its vicinity, which closely resemble those of Palenque, with which they seem to have been contemporaneous. They have been in part described by Mr. Stephens in his "Incidents of Travel in Central America," and by Capt. Dupaix in his report to the Spanish crown on the antiquities of Mexico.

OCTAVE. See Music.

OCTAVIA, the sister of the emperor Augustus, and wife of Mark Antony, died in 11 B. C. She was married to Claudius Marcellus, from whom Julius Cæsar was anxious to have her divorced in order that she might be united to Pompey; but as the latter declined the proposition, she continued to live quietly with her husband until his death in 41 B. C. The alliance between Octavius and Antony was now strengthened by the marriage of Octavia to the latter. She accompanied her husband in his eastern expedition, and by her mediation effected a reconciliation between him and her brother in 36, when the prospect of an open rupture was imminent. Antony, now undertaking an expedition against the Parthians, fell again under the influence of Cleopatra; and when in 35 Octavia went to the East with reenforcements of men and money, he accepted the aid, but refused to meet her, requesting her to return after she had come so far as Athens. She would not, however, on her arrival home, take any part against her husband, but remained at his house and educated his children; yet in 32 Antony requited her conduct by sending her a bill of divorce. After his death, in spite of the wrongs received from him, she brought up his children by Fulvia, and even those by Cleopatra. Octavia had 5 children, 3 by Marcellus and 2 daughters by Antony; from the two latter were descended the emperors Caligula, Claudius, and Nero. She was possessed of great accomplishments, was virtuous in an age of licentiousness, and was universally considered the superior of Cleopatra in beauty. Augustus erected an important public building between the circus Flaminius and the theatre of Marcellus, which he named in honor of his sister Porticus Octaviæ.

OCTAVIUS. See Augustus.

OCTOBER (Lat. *octo*, eight), the 10th month of the year. In the Roman calendar it was originally the 8th month, whence its name, which it retained after the beginning of the year had been changed from March to January. In the Roman mythology October was sacred to Mars.

OD (Sanscrit *va*, to blow; whence the old German *wodan*, all-pervading, *Odin*, the omniscient deity; and thus *od*, the all-pervading force), a supposed universal force of nature, which Baron Karl von Reichenbach claims to have discovered in the course of investigations commenced in 1844, but which is not recognized by scientific men generally as entitled to a place in established science. Without undertaking to discuss the subject, we shall place ourselves on Reichenbach's standpoint while describing his theory. Od, according to him, pervades all nature, and is akin to the great physical forces of electricity, magnetism, chemical affinity, heat, light, &c., and always accompanies them, so that wherever they are in action od is developed, and the strength of its most active development is often in proportion to the energy of their action. In living animals, in effervescing and fermenting liquids, in putrefying substances, in magnets, and in galvanic batteries, od is briskly generated. It radiates from the generators, and its rays pass through all kinds of matter, at a speed of about 100 feet per minute, slower than light and more rapid than heat. As in electricity and magnetism there is a polar dualism, so also there is in od; it has two poles, the positive and negative, which keep company respectively with the electric and magnetic positive and negative poles. These odic poles appear in all organic substances. The human body is od-positive on the left side and od-negative on the right. Amorphous substances are unipolar taken singly, but taken collectively they show an odic dualism, those having the strongest affinity for oxygen being od-negative, and oxygen and the substances having the least affinity for it being od-positive. This gradation of amorphous bodies from od-negative to od-positive is called the od-chemical order, and is found to correspond with the electro-chemical order established by Berzelius. The odic radiation can be felt and seen by certain persons called sensitives, who have a peculiar nervous susceptibility; while the majority of mankind, called non-sensitives, are entirely insensible to the odic influences and impressions. Odic sensitiveness has many symptoms, among which are liability to somnambulism, capability of being magnetized, inability to sleep on the left side in the northern hemisphere, dislike of strong yellow colors, fondness for blue as opposed to yellow, dislike of crowds and close rooms, and dislike of fatty and fondness for sourish victuals. The meeting of like odic poles causes a disagreeable sensation to the sensitive, while an agreeable sensation follows the pairing of unlike poles. The points of quartz crystals and the north poles of magnets send out strong emanations of positive od, and cause a cool and agreeable feeling to the sensitive left hand; while the base of the crystal and the south pole of the magnet, being od-negative, cause a lukewarm and disagreeable sensation to that hand. The sensations caused by these opposite poles are the reverse on the positive right hand. The odic emanation is felt by the touch as though it were a breath; and it is also seen in the dark by the sensitive, but not in the light. The odic rays are perceived like a luminous vapor, and substances which generate od glow with their own od-light, and appear as if incandescent or semi-transparent. The od-light, like solar light, has a spectrum; the rays of positive od are blue, those of negative od yellow. These different colors are seen by sensitives in the odic emanations from the opposite poles of crystals, magnets, the human body, &c. The earth is strongly odic, being od-negative in the northern hemisphere, and od-positive in the southern. If a strong bar magnet be set upright, a stream of od will arise from it, and be distinctly visible in the dark to sensitives. If a circular iron plate be fastened horizontally on top of the bar, an odic rainbow will encircle the plate, caused by the radiation of the odic light from its circumference. The color will be blue in the north; green in the north-west; yellowish green in the west; yellow, orange, and red in the south; grayish red and gray in the east, changing again to blue in the north. The causes of many singular phenomena not hitherto understood are explained by the odic theory. The reason why many persons cannot sleep on their left sides (in the northern hemisphere) is because the northern pole of the earth, being od-negative, causes a disagreeable feeling to the od-negative left side. Similar influences govern the occasional dislike of yellow and fondness for blue. The discomfort caused by the proximity of a person looking over our shoulders arises from the pairing of like poles. The ghosts seen in grave yards are the odic emanations arising from putrefying corpses on fresh graves, and seen at night by sensitives. Motion of all kinds develops od, and the flowing of water underground may by that means be felt by sensitives; and here is the secret of the water finders, whose divining rod, whether consciously or unconsciously, moves only when the odic influence of the flowing water is felt in the sensitives' feet and legs. Od is the agent or force by which mesmerism or animal magnetism operates; and all the mesmeric phenomena belong within the domain of od. Od is a universal force. Mesmerism is only its application to influence the animal frame in a peculiar way. Among the most important phenomena of odic influence as exerted on the human body are somnambulism and cramp, which are two opposite states of the nervous system, the former being entirely and the latter chiefly confined to sensitive persons. Somnambulism is an od-negative state; cramp, od-positive. In high sensitives the former can be created by a few downward passes of the hand over the whole length of the body; the latter by a few upward passes. —Such are the main phenomena of od as set forth in Reichenbach's works, the chief of which are "The Dynamics of Magnetism" (translated into English by Dr. Ashburner), "The Odic-Magnetic Letters," and "The Sensitive Man and his Relation to Od."

ODD FELLOWS, Independent Order of, a secret charitable society existing chiefly in Great Britain and the United States. The origin of this association has been ascribed by some writers to very remote periods and celebrated personages. According to one account, it was known among the Goths, Huns, and other northern nations in the 4th century; was established in Spain in the 5th century, in Portugal in the 6th, and in France in the 12th; and was carried from France to England by John De Neville and other knights, who founded there a "loyal grand lodge of honor," which in the 18th century was changed into the order of odd fellows. Other writers, yet more fanciful, ascribe its origin to the Roman soldiers in the time of Nero, and its name to the emperor Titus, who is alleged to have called them odd fellows from their singularity. Still another class of writers, anxious to make it of the greatest possible antiquity, ascribe the origin of the order to Adam; and an emblem procured from an English lodge in [illegible] in possession of the grand lodge of the United States, represents the father of mankind in the act of laying the foundations of a lodge. These fables, however, have been totally discredited of late years by the authorities of the order, and have been pronounced absurd by the grand lodge of the United States. Its true history is the following. In the latter part of the 17th century lodges or societies of mechanics and laborers existed in London, calling themselves "Ancient and Honorable Loyal Odd Fellows." Their meetings were for convivial purposes, and were generally held in taverns. It became the custom for each member once a week to contribute a penny to form a fund for relief of the poor among them, and [illegible] to defray burial expenses, and to provide for widows and orphans. In 1788 James Montgomery wrote for a London lodge of this sort a song current in the lodges of the order, beginning:

Where friendship, love, and truth abound
Among a band of brothers.

On the extension of the order to Liverpool [illegible] lodges united in a general system [illegible] title of the "Union Order of Odd Fellows," having London as its seat of government. The institution rapidly spread to other English cities, and in 1809 attempts were made to reform it and to abolish its convivial character. This innovation was opposed by the majority, and in 1813 a convention of the friends of reform was held at Manchester, when several lodges seceded from the union order and formed the "Independent Order of Odd Fellows." In 1825 a central standing committee was established in Manchester to govern the order in the interim between the sessions of the grand lodge or national movable committee, as it is termed. Dissensions arose which led to secessions, but the "Manchester Unity" remains to this day the main body of British odd fellows, and numbers about 500,000 members in its lodges. Odd fellowship in the United States owes its introduction to Thomas Wildey, an Englishman, a blacksmith by trade, who with 4 others instituted at Baltimore, April 26, 1819, Washington lodge No. 1, which soon afterward procured a charter from the Manchester unity as the grand lodge of Maryland and of the United States.—The organization of the order bears a general resemblance to that of the free masons. The primary body is the subordinate lodge, which derives its power from a charter granted by the grand lodge, and must comprise at least 5 members, who must be males of 21 years of age or upward. They make their own laws and manage their own pecuniary affairs, require dues from their members to the amount generally of from $4 to $10 a year, pay to the sick a weekly allowance, and assign a stated sum for the burial expenses of a member or a member's wife. A member may withdraw at any time on application, and by paying up all arrearages, either to unite with any other lodge, or entirely from the order. In due season after initiation he may apply for and receive certificates entitling him to receive the first 5 degrees of the order by paying certain sums. These degrees, in the order in which they are given, are termed: 1, the white degree; 2, the covenant degree; 3, the royal blue degree; 4, the remembrance degree; 5, the scarlet degree. There is beside the degree of Rebekah, or ladies' degree, which was instituted by the grand lodge of the United States in Sept. 1851, and is conferred on members of the scarlet degree and on their wives. The officers of a subordinate lodge are the noble grand, who presides, the vice grand, the treasurer, and the permanent and recording secretaries. The treasurer and the permanent secretaries are elected annually, the others for 6 months. A person who has filled the office of noble grand for 6 months is thereafter styled past grand, and a special degree exists to which they alone are eligible. The grand lodge of a state is formed of past grands not fewer than 5 in number. The grand lodge derives a revenue from fees for charters, dispensations, and a percentage on the revenues of subordinate lodges. Its presiding officer is the grand master, who is elected annually. The grand lodge of the United States is composed of representatives elected biennially by the state grand lodges. Its presiding officer is the grand sire, who must also be a past grand master of a state lodge.—There is also within these lodges a separate institution called the grand encampment, whose members are termed patriarchs. Those only are eligible who have received the scarlet degree in the surbordinate lodges. Superior to the encampments there is in each state a grand encampment. The elective officers of an encampment are a chief patriarch, who presides, a high priest, a senior warden, a scribe, a treasurer, and a junior warden. Grand encampments are composed of all past chief patriarchs in their jurisdiction, and in some states also of past high priests. The officers of a grand encampment are the most worthy grand patriarch, most excellent grand high priest, right worthy grand senior warden, right worthy grand junior warden, grand scribe, grand treasurer, and grand representative.—In 1860, according to the official returns, there were in the United States 3,548 lodges and 173,818 members. The amount paid for relief in that year was $548,746.95, and for other charitable purposes $72,450.95; and the total amount for 30 years is $8,478,528.41.

ODE (Gr. ᾠδή, a song), a lyrical poem of an elevated character, composed under circumstances of mental excitement, poetic exaltation, or other intellectual emotion. The Greeks called every short poem intended to be sung or accompanied by instruments an ode. Of antique odes, those of Pindar, Anacreon, and Horace have afforded the most prominent models to modern writers; and the Pindaric ode has proved the parent of countless varieties of so called irregular odes, on the supposition that the Greeks admitted an absolute license of metre in poems of this description. The odes of Pindar, however, as well as the elaborate choruses of the Greek dramatists, are constructed on a scheme of metrical regularity, not less perfect than that discernible in the fragments of Alcæus, Simonides, and Sappho, and the odes of Anacreon and Horace.

ODENSE, a seaport town of Denmark, capital of the island of Fünen, situated on a small river which falls into a bay of the same name about a mile from the town, 86 m. W. S. W. from Copenhagen; pop. in 1851, 11,122. It is a prosperous trading town, and one of the oldest places in Denmark. Its cathedral, founded in 1080, and completed in 1301, contains the tombs of several Danish kings. The town has breweries, distilleries, founderies, and woollen mills. It is said to have been founded by Odin, whose grave is pointed out in a place ¼ of a mile N. of the town.

ODENWALD, a mountain region of Germany in Hesse-Darmstadt, lying between the river Neckar, which separates it from the Schwarzwald, and the Main, which separates it from Spessart. It includes the sources of various small tributaries of the Rhine, Neckar, and Main. The Bergstrasse, or mountain road, on which are the towns of Langen, Darmstadt, and Bensheim, passes along its W. border; and in various parts of the district there are many interesting ruins of the Roman period. The highest mountain of the Odenwald is the Katzenbuckel, which rises to the height of 2,300 feet above the sea, and among the other summits are Felsberg, Malchen, Oelberg, and Kaiserstuhl.

ODEON (Gr. ᾠδεῖον), a species of public building used by the ancient Greeks and Romans for contests in vocal and instrumental music, and occasionally for other purposes, such as philosophical disputations, or the administration of justice. In its general plan it was not unlike the theatre, and in some instances it served as a place of rehearsal for the choruses, previous to their public performances in the theatre. Hence it was smaller than the latter building, and was roofed over for the purpose of retaining the sound. The earliest structure of the kind was that erected by Pericles at the base of the S. E. part of the acropolis in Athens, and in the immediate vicinity of the great theatre. It was burned at the capture of the city by Sylla, and restored by Ariobarzanes II., king of Cappadocia. Athens contained two other odeons, one of which has sometimes been confounded with the Pnyx; the other, a magnificent building, capable of containing 8,000 persons, was erected by Herodes Atticus under the S. W. part of the acropolis, where its ruins are still visible. Corinth, Messene, Smyrna, and many other cities of Greece and its colonies also possessed buildings of this class, some of which were little inferior in extent and grandeur to those of Athens. The first odeon in Rome was built by Domitian, and his example seems to have been occasionally followed there and in other parts of Italy. In modern times the term odeon is sometimes applied to buildings devoted to dramatic or lyrical performances, or to purely musical entertainments, as the odeon in Paris, and that in Munich, which is used as a concert room.

ODER (anc. *Viadrus*), a river of Germany, rising in Moravia, about 14 m. E. N. E. from Olmütz, 990 feet above the level of the sea, and flowing through Prussian Silesia and Brandenburg in a tortuous but generally N. W. course to Oderberg, where it changes its direction to N. E. and flows through Pomerania and the Grosses Haff into the Baltic. Its whole course is about 550 m., and it is navigable for about 400 m. to Breslau for vessels of 50 tons, and for smaller craft to Ratibor, about 100 m. further. The chief tributaries from the right are the Malapane, Bartsch, and Wartha, and from the left the Oppa, Silesian Neisse, Weitritz, Katzbach, Bober, and Bohemian Neisse. The chief towns on its banks are Ratibor, Kosel, Oppeln, Brieg, Breslau, Glogau, Frankfort, Küstrin, and Stettin. It is connected by canals with the Elbe and the Vistula.

ODESCALCHI, the name of a noble family of Rome, the most distinguished of whom are the following. I. BENEDETTO. (See INNOCENT XI.) II. MARC ANTONIO, cousin of the preceding, born in Como about 1620, died in Rome in 1670. He entered the priesthood, and after his cousin's promotion went to Rome to reside; but he refused all honors and preferments, and devoted himself to works of charity. Observing that, though there were so many hospitals in Rome, destitute strangers were obliged to pass the night in the porches of the churches and under the porticos of the palaces, he turned his own house into a hospital in 1656, and received there the poor and the destitute of all nations. He subsequently bought some adjacent houses, and enlarged his hospital, until it contained 1,000 beds. He frequently went through the city in the evening in search of the houseless, whom he conveyed to this hospital. At his death he bequeathed all his property to it, and Innocent XI. not long afterward enlarged it to the capacity of 3,000 beds. It is now known as the hospital of St. Gallus. III. TOMMASO, a kinsman of the preceding, died in 1692. Having been appointed almoner of Innocent XI. he sought opportunities to do good with his own revenues, as well as with those of the pope. Among the poor and destitute, who were congregated at the hospital of St. Gallus, were many children for whom he determined to erect an asylum, where they might be taught to read, and learn some trade or employment. He began with 38 children, and through the liberality of the pope the number was soon increased to 70, most of them street boys and runaways. In 1686 he laid the foundation of a large hospital, which he named San Michele, to be occupied solely by vagrant boys, and those who were in the way of temptation. In this hospital they were to be educated and taught the weaver's trade. At his death he left considerable funds for its further endowment. In 1696 an almshouse founded in 1580, and an orphan asylum founded in 1582, were united with this establishment by Innocent XII., and there were added to it in 1703 a reformatory for boys convicted of crimes, in 1735 a female penitents' refuge, and in 1790 an asylum for young girls exposed to danger from the loss of parents or guardians.—The character of the family seems not to have been changed by the lapse of years, for in 1816 an industrial school for poor girls above 12 years of age, called the conservatory of the Virgin of Sorrows, was founded at Rome by a Cardinal Odescalchi.

ODESSA, a city and seaport of European Russia, in the government of Cherson, on the shore of a bay in the N. W. part of the Black sea, between the mouths of the rivers Dniester and Dnieper, 90 m. W. S. W. from Cherson, about 800 m. S. W. from Moscow, and [illegible] m. N. from Constantinople; lat. 46° 29′ N., long. 30° 44′ E.; pop. in 1857, 10[illegible]. It stands upon a broad plateau about 8[illegible] feet above the sea, to which it descends almost perpendicularly; and the town communicates with the beach by a wide stairway composed of 200 steps. In the rear the plateau spreads out into vast steppes almost destitute of vegetation, from which in summer dense clouds of dust are blown. The streets are wide and laid out at right angles, and there are several squares well planted with trees; but the streets are macadamized and not paved, and are covered with either dust or mud. The town is enclosed by a wall, and is defended by a fort at the S. E. extremity, and by several batteries along the shore; and the ground between the town and the harbor is occupied by a row of barracks. The roadstead is exposed to E. winds, but the anchorage is good, and an inner harbor capable of accommodating 300 vessels at the quays has been formed by 2 moles. The boulevard, running along the shore, is lined with many handsome edifices, and ornamented by several monuments, the most remarkable of which is a bronze statue of the duke of Richelieu, a French *émigré* who entered the service of the czar and was governor from 1803 to 1814, and materially improved the appearance and commercial prosperity of the town. The principal buildings are the cathedral and other churches, government house, admiralty, custom house, hospital, exchange, museum, opera house, and theatre. The houses are generally well built of soft calcareous stone. There are numerous schools, a college, 2 public and several circulating libraries, a botanical garden, and a museum for South Russian antiquities founded in 1825. The climate is generally considered healthy. The heat in summer, however, is very great, and in winter the port is generally closed by ice for about 2 months. Good water is exceedingly scarce, the surrounding country, with the exception of a narrow belt along the shore, being an arid steppe. The town is supplied from extensive reservoirs with water conveyed by an aqueduct about 20 m., artesian wells having been sunk 600 feet without success. There are but few manufactures, but Odessa is for most things a free port, and a very extensive trade is carried on. The soil of the districts bordering the steppes in the interior, particularly on the N. side, is exceedingly productive, and yields large crops of grain, especially wheat, which is for the most part exported through Odessa to the ports of the Mediterranean and Great Britain. In the year ending Sept. 30, 1859, there were exported 6,697,765 bushels of wheat, 1,935,981 of maize, 2,056,288 of rye, 3,371,338 of oats, 2,969,851 of barley, and 1,070,000 of linseed, beside considerable quantities of peas, beans, and rape seed, 47,060 cwt. of tallow, and 67,683 cwt. of wool. During the same period the value of the imports amounted to $10,397,061, the principal items of which were manufactured goods, porter, oil, fruit, and machinery. The number of sailing vessels that arrived was 1,376, most of which were under the Austrian flag, and next in succession the British, Sardinian, and Greek. Steamers ply from Odessa to the ports on the Danube and in the Crimea, Cherson, Constantinople, and England. The inhabitants are of mixed races, and consist chiefly of Russians, Greeks, Jews, and Germans; and the commerce is chiefly in the hands of Italians, English, French, and Armenians.—The origin of Odessa is of very modern date. In 1792 Catharine II. selected the site, which was then only occupied by a few houses, and called Khodja-bey. She changed the name to Odessus, which has since been Italianized into Odessa. The town was founded in 1794, and several regiments were employed in constructing public works, so that in the course of a few years considerable progress was made. Alexander I. continued the work, and reduced the import and export duties. In 1817 the port was opened, and the inhabitants declared free from taxes for 30 years. In consequence of the fort of Odessa having fired upon a British steamer under a flag of truce during the Crimean war, a French and English squadron bombarded the place on April 22, 1854; but the fire was directed chiefly against the batteries and the vessels in the harbor. In the following month the British steam frigate Tiger ran aground in the night during a fog, and was fired on by the Russians, and the crew made prisoners. The railroad which connects St. Petersburg with Moscow is to be continued to Odessa.

ODEVAERE, Josephus Dionysius, a Flemish painter, born in Bruges, Oct. 2, 1778, died in Brussels in Feb. 1830. He studied painting in the academy of Bruges, and subsequently under Suvée and David in Paris. In 1804 he obtained the great prize of the French academy of painting for a picture of the death of Phocion, with a pension to study at Rome, whither he went in 1805, and remained about 7 years. In 1814 he settled in Brussels, where he passed the remainder of his life. His "Peace of Utrecht" and "Battle of Waterloo" brought him into considerable popularity; and the latter picture, with others of his works, was exhibited in many of the Netherlandish provinces during 1817 and 1818. About this time he acted as commissioner on the part of the Netherlands to recover the paintings taken from the national collections to Paris. Some of his pictures are of great size. He was esteemed the best modern Flemish painter of history.

ODILON BARROT. See Barrot.

ODIN, or Wodin, the principal deity of Scandinavian mythology. He was worshipped throughout the north of Europe as the creator and preserver of the world, and the god of war. He is known in the sagas by more than 100 titles, derived from his various attributes and from the countries in which he was acknowledged. He is represented with a raven upon each of his shoulders, the one Hugin (Mind), and the other Munnin (Memory), who whispered into either ear all they had seen and heard in their flight around the world. His wife, Frigga, was next in rank among the

Scandinavian deities; and among their children Thor and Baldur were of most importance and interest.

ODIN, a legendary Asiatic chieftain, the supposed archetype of the Scandinavian god of the same name. According to tradition, he flourished in the 1st century B. C., and was an ally of Mithridates the Great in the war against Pompey. He was driven by the Roman conqueror from his territory upon the Caspian sea to the north of Germany, where he began his conquests and founded his religion. He passed next into the Cimbrian peninsula, overran the whole of modern Denmark, and built a city bearing his name (Odense) in the island of Fünen. Other regions of the Baltic came in turn under his sway, and he was soon the recognized monarch of the North. He established himself in Sweden, and built his capital Sigtuna on Lake Maelar, near Stockholm. Ruins of temples are still to be traced in this interesting old town, which bears one of the many titles (Sigge) of the founder. After he had reigned many years, perceiving the approach of death, he summoned his warriors, and informed them that it was his purpose to return to Scythia to be present at the banquet offered him by other gods. So saying, he inflicted upon his breast 9 wounds in the form of a circle, and left orders that the body, which he should leave to them in Sweden, should be burned. This great Scandinavian myth has left impressions in the north of Europe, which time and all the civilization of Christianity have not been able to efface. At the present day, in many districts, whenever unusual sounds are heard in the night, the peasants will say Odin walks there. They call the wintry sighing of the forest the wild hunt of Odin. "Go to Odin" is a common malediction. The hero was especially venerated as the inventor of runes. His armies are supposed to have been the Suiones of Tacitus, and the nations whom he found in possession of Sweden were the tribes of Goths, who had in like manner previously overrun the country. —Several other Odins of later date are mentioned in Scandinavian tradition.

ODOACER, commonly called king of the Heruli, and the conqueror of Italy, put to death, A. D. 493. He was the son of Edecon, a minister of Attila and chief of a tribe of Scyrri. Odoacer led a wandering life in Pannonia and Noricum, and then went to Italy, where he entered the service of the western empire, and speedily rose to high command. After the abdication of Nepos, and the elevation to the imperial throne of Romulus, called in derision Augustulus, the barbarians demanded as a reward for their services the third part of the lands of Italy. When this was refused, the soldiers chose Odoacer for their leader, who drove Orestes, the father of Augustulus, to Pavia, stormed that city, and compelled Augustulus to abdicate his crown (476). By this act an end was put to the western empire, inasmuch as Odoacer, though styled king of Italy, never assumed the purple or the titles of Cæsar and Augustus, and had no coins struck in his name. But, possessing the supreme authority, he ruled the country mildly, enforced the laws, and protected the frontiers from the barbarians of Gaul and Germany. Although an Arian, he did not molest the church. The Roman possessions beyond the Alps, to the Rhine and the ocean, he ceded to Euric, king of the Visigoths. Crossing the Adriatic, he subdued the province of Dalmatia; crossing the Alps, he defeated Fava, the king of the Rugians, and brought him and a vast number of captives to Italy. At length Theodoric, leader of the Ostrogoths, descended from the Julian Alps, and defeated Odoacer near Aquileia, took Verona, and defeated a second army encamped on the banks of the Adige. Odoacer retired to Ravenna, and for 3 years held out against his rival, but finally capitulated on condition of ruling with equal authority with Theodoric over Italy. Only a few days had passed, however, when Odoacer was killed by the order of his associate, and his troops massacred.

ODOMETER (Gr. ὁδός, a road, and μέτρον, a measure), an instrument for determining the distances passed over in travelling, also known as pedometer, perambulator, &c. It is made in various forms, adapted either for the use of pedestrians or to be attached to wheels specially constructed for this purpose, or to the wheels of carriages. Odometers of the latter class were employed by the ancient Romans, as appears from the mention made of one adapted for a carriage by Vitruvius in his 10th book. In the 15th century they were in use in Europe, and the first attempt made in France to measure a degree of the meridian was by running one of these instruments over the road between Paris and Amiens. (See EARTH.) The principle upon which this kind of odometer is constructed is the recording by a mechanical contrivance the number of revolutions of a wheel (it may be one of those belonging to the carriage) in passing from one place to another. By multiplying this number by the number of feet and inches that make the circumference of the wheel, the distance is at once given. The apparatus for recording the revolutions is a simple train of wheels and index connected with the axle of the wheel, and placed in view of the person in the carriage. Such an instrument should give tolerably correct results upon level roads; but where the surface is very uneven, the actual distance must be much increased by the ascent and descent of the slopes. On account of the facility and rapidity of its work, it is much employed in the surveys of counties and towns, where extreme accuracy is not important, and in the U. S. coast survey it is also used for filling up the details of roads, &c. In one form it is a wheel of 2 feet 7½ inches diameter, and 8 feet 3 inches circumference, marking one rod in two revolutions. This is attached to a long handle by which a person walking pushes it forward. Near the end of the handle is the box containing the index under a glass cover. It is made to point the number of miles and rods travelled over, or any other measures of distance.—The form of odometer carried by pedestrians, and designed for recording the number of steps, is generally called a pedometer. It resembles a watch in size and shape, and may be worn in the vest pocket. Its machinery is so constructed that by the rising and sinking of the body with each step a lever is made to vibrate, which moves the index hand connected with it. In London odometers have been contrived for hackney carriages to serve for the proprietors or for the passengers as checks upon the distance travelled. By one form of this apparatus, patented in 1851, the box containing the train of wheels attached to the side of the carriage is provided with two dials, one of which is outside for the use of the passenger or driver, and the other inside for the protection of the proprietor and accessible only to him.

O'DONNELL, LEOPOLD, count of Lucena and duke of Tetuan, a Spanish soldier and statesman, born in 1808. He is descended from an Irish family of considerable importance under the later Stuarts, which after the battle of the Boyne emigrated to Austria. Several of its members became distinguished in the imperial service, and one of them, finding his way to Spain, founded there a Spanish branch of the family. Leopold O'Donnell, the subject of this memoir, is a son of a Spanish general of some reputation in the early part of the present century, under whose influence he entered the army, and before the age of 25 attained the rank of colonel. The Carlist war, in which he sided with the young queen, first brought him prominently into notice; and for his services in raising the siege of Lucena he was created count of Lucena, and received from Espartero the appointment of chief of the staff and the command of the army of the centre. He subsequently attached himself to the cause of Queen Christina, with whom, upon the elevation of Espartero to the regency, he was obliged to take refuge in France. In 1841 he was permitted to return to Spain upon pledging his fealty to the established government; but he almost immediately joined the revolutionists who were endeavoring to overthrow Espartero. Defeated at Pampeluna, he again took refuge in France, whence, upon the retirement of Espartero in 1843, he returned to Spain, and was rewarded for his persevering efforts against the regent by being appointed captain-general of Cuba, where he is said to have amassed a fortune. After his return to Spain he busied himself again with political intrigues, and, upon threatening to exert his influence against the government, was appointed by Narvaez director-general of the infantry, which office he retained until 1851, when the jealousy of Narvaez caused his dismissal. He again joined the opposition, and during the succeeding Sartorius ministry became so deeply implicated against the court and Queen Christina, that at the commencement of 1854 he was proscribed and obliged to conceal himself. In June he headed a revolt, was defeated in Vicalbaro, took refuge in Andalusia, and under the pressure of the moment sided with the *progresista* party and issued a manifesto, demanding the restitution of the constitution of 1837, the emancipation of Queen Isabella, the perpetual banishment of the queen mother, the amelioration of the laws regulating the elections and the press, the reduction of taxes, and other popular measures. At this crisis Espartero was invited by the queen to form a ministry; he accepted, and in company with O'Donnell made a triumphal entry into Madrid on July 29. O'Donnell soon after received the portfolio of the war department, and was appointed a marshal. But he had little sympathy for the liberal measures proposed by Espartero, and to his efforts the dismissal of that minister in July, 1856, is mainly ascribed. He succeeded him as president of the council, and inaugurated his administration by declaring Spain under martial law, closing the cortes, abolishing the national guard, and by other absolute measures. Insurrections followed, which, however, were generally suppressed; but Narvaez having successfully plotted against him, he was, in Oct. 1856, obliged to retire from office. He returned to power again in 1858, and in 1859 held the double position of prime minister and commander-in-chief of the forces engaged in the war in Morocco. (See MOROCCO.) For his services in the latter capacity he was created duke of Tetuan. He is a man of imposing presence, and of an aspect said to be more Irish than Spanish.

ODYSSEY. See HOMER.

ŒCOLAMPADIUS, or OEKOLAMPAD, JOHANNES, the Græcized name of Johann Hausschein, but whose real name, according to recent investigations, was Hussgen or Heussgen, a German reformer, born in Weinsberg, Swabia, in 1482, died in Basel, Nov. 24, 1531. His father was a merchant, and at first intended him for the same career. But his mother "desired to consecrate her only son to learning and to God," and he himself was averse to business, and fond of literary pursuits. He entered the university of Heidelberg at 12 years of age, went thence to Bologna to study jurisprudence, and returned to Heidelberg, where he studied theology. He was afterward tutor to the son of the elector palatine, and then held a benefice founded by his parents, but resigned both functions in order to continue his theological studies at Tübingen and at Stuttgart. He had already while in Heidelberg formed a friendship with Capito, the preacher and reformer, and through him with Erasmus, for whom he had the most ardent admiration. After preaching for a short time with great success in Weinsberg, he was in 1515 invited to Basel, and while there assisted Erasmus in his "Annotations on the New Testament." About the end of 1518 he was invited to Augsburg. He found the city excited by a recent conference between Luther and the papal legate. Obliged to choose one side or the other, he declared for Luther. A violent dispute ensued, and being constitutionally timid, and wanting as he thought in the qualities which make a successful minister, he retired in 1520 to a convent of the monks of St. Bridget, near Augsburg. But here his position was still more uncomfortable. He stood at this time midway between Luther and Rome, desiring a "certain purified Catholicism," but was inclining more and more toward the side of Luther. He left the convent, after having been there nearly two years, and took refuge in the castle of Ebernburg, where for a time he was preacher to Francis of Seckingen. In 1522 he went to Basel, where he became curate of St. Martin's, and subsequently professor of theology, drawing large audiences whenever he preached or lectured. He led the discussion at the conference in Baden, in 1526, against Eck, and was distinguished there for his mildness and ability. In Jan. 1528, he attended a conference in Bern. His mother dying soon after his return, he resolved to take a wife, having written against the celibacy of the clergy some years before. He married Wilibrandis, daughter of a knight of the emperor Maximilian; which gave occasion for the remark of Erasmus: "Luther's affair is called a tragedy, but I maintain it is a comedy, for each act of the drama ends in a wedding." He supported Zwingli in his dispute with Luther respecting the real presence in the Lord's supper, and published a treatise entitled *De Vero Intellectu Verborum Domini: Hoc est Corpus meum*" (1525), in which he maintained the word *corpus* to be only symbolical. He took the same ground at the celebrated conference at Marburg in 1529, where with Zwingli he disputed against Luther and Melanchthon. Although Luther differed so much from him, Œcolampadius was one of the few among his opponents whom he still loved. On the death of Zwingli he was invited to Zürich to take his place; but in a letter addressed to the great reformer, March 26, 1526, he complained of being a *perpetuus valetudinarius*, and died soon afterward. His name stood second only to that of Zwingli, and he was called the Melanchthon of Switzerland. He was a tall, handsome man, of a patriarchal presence, taking more delight in studies and spiritual exercises than in active intercourse with the world, into which he was drawn only by the command of his conscience and the necessities of his times. His widow became the wife of Capito, and after his death she married Bucer. His principal works are: *Annotationes in Genesin; Exegemata in Librum Job; Commentariorum in Esaiam libri sex; De Ritu Paschali;* and *Quod non sit onerosa Christianis Confessio.* His life was written by Hess (Zürich, 1791), and by Herzog (Basel, 1843).

ŒCUMENICAL COUNCIL. See COUNCIL.

ŒDEMA (Gr. *οιδημα*, from *οιδεω*, to swell), a swelling occasioned by the infiltration of serum into the areolar tissue of a portion of the body. The limits between œdema and anasarca are not very strictly defined, being those of degree merely. Anasarca, arising from disease of the heart or kidneys, commences with œdema, which as it becomes general assumes the name of anasarca. Any thing which interferes with the return of the venous blood from a part may produce œdema; thus in pregnant women the pressure of the uterine tumor upon the great veins within the abdomen, may cause œdema of the lower extremities; and the same result follows in feeble persons the long maintenance of the upright position, the blood having to return against the force of gravity. Obliteration of any of the large venous trunks by adhesive inflammation is followed by œdema of the parts whose blood was returned by the obliterated trunk; thus phlegmasia dolens is caused by inflammation and plugging up of the femoral or iliac veins. The pressure of an aneurism or other tumor within the chest, upon the vena cava or vena innominata, may produce œdema of one half or the whole of the upper part of the body. Paralyzed limbs frequently become œdematous from the venous circulation no longer being aided by the contraction of the muscles of the part. Certain conditions of the blood, such as occur in chlorosis and scurvy are favorable to the occurrence of œdema. In all these instances the œdema is of a passive kind; but the same symptom occurs as an attendant on some forms of inflammation, particularly a variety of erysipelas, hence termed œdematous erysipelas. In all instances œdema is simply a symptom produced by different causes, and is to be treated according to the cause by which it is produced. Two varieties of œdema, that of the glottis and that of the lungs, from their importance arising from the nature of the organs affected, deserve special mention. —Œdema of the glottis may occur from exposure to cold and moisture, as a consequence of tonsillitis and other affections, the inflammation extending to the larynx, or in the course of various diseases, as erysipelas, typhoid fever, &c. The patient is conscious of an increasing impediment in his respiration, and of a sense of stricture about the larynx. There is a dry hoarse cough coming on in paroxysms, with fits of suffocation, while the voice is hoarse, whispering, and finally extinct. Inspiration is prolonged and difficult, while expiration is comparatively unaffected. Sometimes, but not invariably, there is soreness of the throat and difficulty of swallowing. The pulse, at first unaffected, as the difficulty of breathing increases becomes small and frequent, and the body is bathed in perspiration. Death from suffocation sometimes takes place a few hours after the commencement of the attack. On post mortem examination the cellular tissue underneath the mucous membrane lining the glottis is found infiltrated by serum, narrowing the opening of the glottis and having a sort of valvular action in inspiration. When violent the disease rarely leaves much time for treatment. Schönlein of Berlin first suggested the operation in Europe, and Dr. J. O. Peters in America. But Dr. Gurdon Buck of New York was the first to carry it into effect, and has relieved numerous cases of this affection by nicking the œdematous mucous membrane, and thus giving exit to the effused serum which is the cause of the difficulty. For this purpose he has devised a peculiar narrow probe-pointed bistoury. The fore finger of the left hand being carried boldly down to the laryngeal opening and pressed upon this as a guide, several minute incisions are made in the mucous membrane of the glottis. When Dr. Buck's operation does not succeed, recourse must be had to tracheotomy.—Œdema of the lungs occurs in heart disease as a consequence of the embarrassed condition of the circulation through the lungs, in albuminuria (see ALBUMINURIA), in typhus and typhoid fevers, in anæmia, and in pneumonia and bronchitis. Its symptoms are difficulty of breathing, in some cases extreme, and a sensation of weight or constriction in the chest. There is teasing cough with a watery and sometimes viscid expectoration. On physical examination the percussion note is but slightly affected; auscultation gives a smooth, moist, fine, sub-crepitant rhonchus. The treatment, when treatment is necessary, is that of general dropsy.

OEDENBURG (Hung. *Soprony*), a town of W. Hungary, capital of a county of the same name, near Neusiedler lake, on a branch of the Vienna and Cilly railway, 37 m. S. S. E. from Vienna; pop. 15,000, chiefly Germans. It is neatly built, and has several fine churches, both Catholic and Lutheran, colleges of both creeds, convents, hospitals, barracks, a military academy, a theatre, and a curious watch tower which anciently formed part of its fortifications. It has manufactures of cotton, woollen, &c., and an active trade in wine.

ŒDIPUS, a mythological king of Thebes, whose life formed a favorite subject for the tragic poets of antiquity. According to the common form of the legend, he was the son of Laius, king of Thebes, and Jocasta. An oracle having informed Laius that he should be killed by his son, no sooner was Œdipus born than he was exposed on Mt. Cithæron with his feet pierced and bound together. In this situation he was found by a shepherd and brought to King Polybus of Corinth, who being childless adopted him as his own son and called him Œdipus from his swollen feet. He grew up in ignorance of his birth, and once being taunted with not being the son of the king, he consulted the oracle at Delphi. From it he received the answer: "Avoid the soil of thy country, or thou wilt be the murderer of thy father and the husband of thy mother;" and supposing Corinth was meant, he determined not to return. On the road between Delphi and Daulis he met Laius, and being ordered by the charioteer of the latter to make way an affray ensued in which he killed both his father and the charioteer. At this time the sphinx was laying waste Thebes, proposing a riddle to every passer-by, and devouring all who were unable to solve it; and so great became the devastation, that a proclamation was made by the Thebans, offering the crown and the hand of Queen Jocasta in marriage to him who should free the country from the monster. Œdipus undertook the task, and the following riddle was given him: "A being with four feet has two feet and three feet, and only one voice; but its feet vary, and when it has most it is weakest." This he solved, saying the being was man, who in infancy crawls upon all fours, in manhood walks erect, and in old age supports himself by a staff. The sphinx hereupon destroyed herself, and Œdipus obtained the crown and married his mother, who bore him two sons, Eteocles and Polynices, and two daughters, Antigone and Ismene. A pestilence desolating the land on account of this incestuous alliance, the oracle ordered the expulsion of the murderer of Laius; and a proclamation was issued anouncing a curse upon the unknown criminal, and declaring him an exile. Œdipus was hereupon informed by the prophet Tiresias that he himself was the parricide and the husband of his mother. Jocasta hanged herself, and Œdipus put out his eyes. After this, according to one form of the legend, Œdipus was driven from Thebes by his sons and Creon, his brother-in-law, and under the guidance of his daughter Antigone went to Attica. According to another, he became dependent upon his sons, on whom he imprecated a curse, praying to the gods that there might be endless war between them, and that they might perish each by the hand of the other. After Eteocles and Polynices had slain one another, Creon succeeded to the throne and drove out Œdipus, who finally reached the groves of the Eumenides, near Colonus in Attica, where he was received with distinguished honor by Theseus. There he died, and his burial place was concealed by the Eumenides, whose favor he had conciliated. The Homeric account of the tradition is different in several particulars. The tragedies founded upon this legend which Æschylus and Euripides wrote are now lost; but two by Sophocles remain, entitled *Œdipus Tyrannus* and *Œdipus Colonus*. Seneca also wrote one on this subject, and in modern times Corneille and Voltaire.

OEHLENSCHLÄGER, ADAM GOTTLOB, a Danish poet and dramatist, born in Vesterbro, a suburb of Copenhagen, Nov. 14, 1779, died in Copenhagen, Jan. 20, 1850. His parents were of German extraction, and his father, the descendant of a long line of schoolmasters and organists established in Krusendorf, Schleswig, entering the service of Count Adam Gottlob Moltke (after whom the poet was named), was by the influence of that nobleman appointed steward of the royal palace of Frederiksborg, situated about 2 miles from Copenhagen. In this building was passed the early life of young Oehlenschläger, who in his *Erindringer*, a minute autobiography coming down to a late period of his career, has described the impression which the place, its associations and surroundings, and the occasional presence of the court, made upon his boyish imagination. At 12 years of age he was placed in one of the public schools of Copenhagen, and soon after began to write verses and even plays, which were performed in one of the rooms at Frederiksborg by himself and some of his schoolfellows. At the same time he was a diligent reader of novels in the Danish language, over which he thereby obtained a remarkable mastery. When about 18 years of age he was possessed with the desire of going upon the stage; but finding his chances of success not very encouraging, he relinquished the idea, and under the influence of two young students, the brothers Oersted, who afterward gained distinction in the walks of natural science and jurisprudence, he commenced the study of the law in the university of Copenhagen. His literary tastes soon led his thoughts into other channels, and in 1803 he ventured before the public as the author of a volume of poems containing, among other things, the play of "The Eve of Saint John," which, with the drama of "Aladdin" published soon afterward, brought him into considerable notice, and procured for him in 1805 a travelling stipend from the government. Proceeding at once to Germany, he made the acquaintance of Goethe, Tieck, Wieland, Hegel, and other distinguished literary men, and cultivated the language of the country with so much success, that he was soon enabled to translate his works as fast as composed into German. At Halle he wrote his "Hakon Jarl," the first and one of the finest of his purely Scandinavian tragedies; and at Paris, whither he proceeded in 1806, and where he remained two years, he produced "Palnatoke," considered by some his masterpiece, and "Axel and Valborg," all dramas of powerful interest, not less on account of their national tone and spirit, than of the vivacity and variety of the action, and the picturesque manner in which the incidents, thoughts, and manners of distant ages are brought before the reader. He next visited Italy, and while residing in Rome in intimate personal relations with his countryman Thorwaldsen, he composed his "Correggio," an art drama founded on the life and character of the great painter of Parma, and originally written in German. It was subjected to severe criticisms from some of the author's most illustrious literary friends, but became an exceedingly popular acting play on the German and Danish stage. An English translation of it by Theodore Martin was published in 1854. After about 5 years' absence Oehlenschläger returned in 1810 to Denmark, the first of living Danish poets, and among the first of modern dramatists. He soon after obtained the professorship of æsthetics at the university of Copenhagen, was married, and commenced an active literary career, which was continued, with few intermissions, until the close of his life. He wrote not merely dramas, but novels, poems, translations, and a great variety of miscellanies; and as he advanced in years he became the recipient of honors from his sovereign and countrymen, who gloried in his literary reputation, and from other European nations. Visiting Sweden in 1829 for the first time in his life, he was welcomed with an extraordinary ovation by the inhabitants of Lund, in which Bishop Tegnér and other eminent men took part; and subsequent visits made by him to Norway and Sweden "were like triumphal processions of a sovereign in literature." On his 70th birthday a grand festival was given in his honor in the royal shooting gallery at Copenhagen, in which the chief poets of Denmark participated. In less than 3 months afterward he died, an extract from his own tragedy of "Socrates," in which Socrates speaks of death, having at his request been read to him during his last moments. His funeral was attended by [illegible] persons, including those most eminent in literature, art, science, and the public service. His tragedies, on which his fame chiefly rests, are 24 in number, 19 being devoted to Scandinavian subjects. Of the latter, in addition to those mentioned, the most striking are "Canute the Great," "The Varangians in Constantinople," "Land Found and Lost," illustrating the early voyages of the Northmen to America, "Dina," and "Tordenskiold." To these must be added a number of dramatic pieces in a lighter vein, the whole forming a series "which for extent and value no other author of the 19th century can rival." His remaining works of imagination, whether in poetry or prose, are of less merit, the best being the *Nordens Guder* ("Gods of the North"), published in 1819, in which he attempted with success to combine into one whole the scattered legends of the Eddas. An English metrical translation of this by W. E. Frye was published in Paris in 1845. Oehlenschläger also translated the "Midsummer Night's Dream" and Beskav's Swedish dramas into Danish, and Holberg's "Danish Theatre" into German. His collected works in Danish, including his *Erindringer* or "Recollections," an autobiography, amount to [illegible] vols.; those in German of all kinds to 21. A series of elaborate articles, by R. P. Gillies, on his dramas, accompanied by copious translations, appeared in "Blackwood's Magazine" in 1820–'1. Oehlenschläger was a man of great purity of heart and simplicity of character and genial, childlike manners. Self-esteem was one of his chief characteristics; but apart from the fact that it was grounded on genuine merit, he is known to have regarded himself only as the medium through which an inspiration from a higher source spoke, and his poetry as the result of that inspiration.

OERSTED, Anders Sandöe, a Danish statesman, born in Rudkjöping, in the island of Langeland, Dec. 21, 1778, died in Copenhagen, May 1, 1860. He was educated with his brother Hans Christian at the university of Copenhagen, where he formed an intimacy with Oehlenschläger, whose sister he subsequently married. In 1799 he passed his examination for admission to the bar, and soon took rank as one of the ablest advocates in Denmark. After filling various public offices, he was in 1825 appointed attorney-general, in which capacity he drew up many of the important ordinances then constituting the laws of Denmark. After the revolutionary movements in Europe of 1830–'1, he assisted in framing the constitution demanded by the provincial states of the kingdom, at the assembly of which he for several years represented the king, as high commissioner, with great acceptance. Between 1841 and 1848 he held a seat in the Danish cabinet, and, in Oct. 1853, was appointed by Frederic VII. prime minister. The reactionary character of the propositions advanced by him, one of which was the right of the king to grant new constitutions to Holstein and Schleswig without consulting the diet, brought him into great disfavor, and the chambers clamored for his dismissal. He was sustained by the king; but after a severe constitutional struggle the latter was obliged to yield, and in Dec. 1854, the unpopular ministry was dismissed. Articles of impeachment were subsequently preferred against Oersted and his colleagues, who were tried by a commission composed of 8 members of the supreme tribunal (*höveste ret*), and as many from the *landthing* or upper house of the diet, and acquitted, the votes for and against their conviction being equally divided. He afterward lived in retirement, engaged in completing a work of an autobiographical character entitled "Fragments of the History of my Life and Times," of which the 4th volume appeared in 1856. As a jurist he established a considerable reputation by the publication of several law treatises, and as editor of three successive legal periodicals. He also produced several works on philosophy, in which he adhered to the school of Hegel. Among his latest publications was a work on "Scandinavian Politics in Modern Times" (8vo., Copenhagen, 1857).

OERSTED, Hans Christian, a Danish natural philosopher, brother of the preceding, born at Rudkjöping, Aug. 14, 1777, died in Copenhagen, March 9, 1851. He was the son of a druggist in moderate circumstances, whom at the age of 12 he assisted in his business. Possessing a fondness for the physical sciences, he repaired in 1794, in company with his brother, to the university of Copenhagen, where, pinching themselves in the matter of food and lodging, they pursued their studies with singular earnestness. Hans Christian, at the same time, became imbued with the modern German philosophy, then first promulgated in the Danish capital through the lectures of Steffens, and competed successfully for the university prize medal on the subject of the "Limits of Poetry and Prose." In 1799 he took his doctor's degree, presenting for the occasion his "Architectonics of Natural Metaphysics," in which were embodied the fruits of a patient study of the laws of physics and of their higher relations as the products of reason. In 1800 he took charge of an apothecary's shop, and, devoting his attention to galvanism, made important discoveries with respect to the action of acids during the production of galvanic electricity. He was one of the first to show the opposite conditions of the poles of the galvanic battery, and that acids and alkalies are produced in proportion as they neutralize each other. In 1801–'3 he studied and travelled in Germany, France, and Holland, and upon returning to Copenhagen lectured on electricity and the cognate sciences. About the same time he commenced a series of articles on "Acids and Bases" in Gehlen's "Journal," and produced a number of scientific papers in German and Danish, a selection from which, showing the poetico-philosophical tendency of his mind, has been reproduced in English by the Misses Horner, under the title of "The Soul in Nature, with Supplementary Contributions." In 1806 he became professor of physics in the university of Copenhagen, and in 1809 published the first edition of his "Manual of Mechanical Physics." In 1812 he revisited Germany, and at the suggestion of Niebuhr published at Berlin a work tending to show the identity of chemical and electrical forces, which is considered to have unfolded the germ of his subsequent discovery in electro-magnetism. The latter was made in the winter of 1819–'20, while Oersted was engaged in a special study of the connection of magnetism and electricity. He was lecturing one day to a class of advanced students, when it occurred to him, as a means of testing the soundness of the theory which he had long been meditating, to place a magnetic needle under the influence of a wire uniting the ends of a voltaic battery in a state of activity. He tried the experiment upon the spot, and found that the needle tended to turn at right angles to the wire, thus proving the existence of electro-magnetism, or the relation of electricity and magnetism as mutually productive of each other, and as evidences of a common source of power. Previous to this time the identity of magnetism and electricity had only been suspected. For several months Oersted prosecuted experiments on the subject, and in July, 1820, promulgated his discovery in a Latin tract entitled *Experimenta circa Efficaciam Conflictus Electrici in Acum Magneticam*, in which he contended that "there is always a magnetic circulation around the electric conductor, and that the electric current, in accordance with a certain law, always exercises determined and similar impressions on the direction of the magnetic needle, even when it does not pass through the needle, but near it." The principal experimenters of Europe immediately busied themselves in the verification of this discovery. Testimonials were showered upon Oersted from every European capital; the French institute presented him with a prize worth 3,000 francs; the royal society of London bestowed upon him the Copley medal; and by common consent he was elevated to the first rank of scientific men. For a number of years subsequent he pursued his inquiries in the wide field of miscellaneous physics, the fruits of which appeared in numerous papers and scientific memoirs. At intervals he undertook scientific missions to various parts of Europe, and founded the magnetic observatory of Copenhagen, and also the Danish society for the diffusion of natural science, one object of which was to send forth a body of popular lecturers over the kingdom. In 1844 appeared the 2d edition of his "Manual of Mechanical Physics," which, among other valuable additions, contained accounts of his experiments on the compressibility of water and air. Amid his engrossing scientific studies he also found time to cultivate Danish literature and politics, and, beside producing a lyrical and didactic poem called "The Balloon," was a frequent contributor of important information to the newspapers, and the intimate associate of the chief literary men of Copenhagen. He was a friend of liberal constitutional ideas, and in 1835 aided in founding a society for securing the freedom of the press, although his position and inclinations as a man of science afforded him few opportunities for direct action in political life. Honors crowded upon him during his latter years, and the 50th anniversary of his connection with the university of Copenhagen (Nov. 7, 1850) was celebrated by an extraordinary jubilee, in which deputations from the king and ministry and the chief scientific institutions of the country participated. His death in the succeeding spring called forth a universal expression of sorrow, and his funeral was attended by one fourth of the population of Copenhagen, the procession being headed by the representative of the king and by the crown prince. Throughout his scientific career Oersted labored to show that the laws of nature must harmonize with reason, even representing the practice of science to be a religious worship. He engaged in several warm controversies on this topic. Sir Humphry Davy, who visited him in Copenhagen, considered him a man of simple manners and not of extensive resources; but Niebuhr, viewing his character in another light, declared that he "scarcely knew another natural philosopher with so much intellect and freedom from prejudice and *esprit de corps*." His manners were eminently pleasing and simple, and in all the relations of life he sustained an unblemished reputation. As a lecturer he possessed great merit, and was one of the first to give popular lectures to ladies on scientific subjects, and to urge the establishment of female colleges.

OESEL, an island in the Baltic, at the mouth of the gulf of Riga, comprised in the Russian government of Livonia, between lat. 57° 40′ and 58° 14′ N., and long. 21° 40′ and 23° E.; length about 60 m., breadth from 8 to 50 m.; area, 1,200 sq. m.; pop. 40,000. It has a bold, high coast, and a diversified surface. The climate is more temperate than on the mainland, but violent storms happen frequently in spring and autumn. The soil, though not naturally fertile, is watered by many small streams and capable of being easily improved. A great part of the island is covered with forests, and a considerable extent of it is used as pasture ground. Grain is raised for exportation. The only important manufacture is tar. The fisheries on the coast, chiefly of seals, are valuable. The chief town is Arensburg on the S. E. side. The majority of the people are Lutherans. Oesel at one time belonged to the Teutonic knights, but was seized by the Danes at an early period and ceded by them to Sweden in 1645. In the beginning of the 18th century Russia took possession of it, and in 1721 it was formally ceded along with Livonia to that power.

OETTINGER, EDUARD MARIA, a German miscellaneous author of Jewish parentage, born in Breslau, Nov. 19, 1808. After studying at a private school he went to Vienna to complete his education. Having adopted the Roman Catholic religion, he entered upon the career of a journalist, and afterward edited journals, mostly of a humorous and sarcastic character, in Berlin, Munich, Hamburg, Mannheim, and Leipsic. In 1852 he was living in Paris, whence he removed in 1853 to Brussels. Oettinger has written several romances, among which the most noteworthy are "The Ring of Nostradamus" (1838); "Uncle Zebra" (1842-'3); "Sophie Arnould" (1847); "Potsdam and Sans-Souci" (1848); and "Jerome Napoleon and his Capri" (1853). Several of his poems have become very popular. His writings are marked by an unmistakable talent for sarcasm, and by a playful vivacity, which is especially apparent in the "Grammar of Marriage" (1844), and in the "Art of Becoming a Gentleman in 24 Hours" (1852). In the department of bibliography his works are noteworthy; among them are *Archives historiques* (1841), *Bibliotheca Schahiludii* (1844), *Iconographia Mariana* (1852), and *Bibliographie biographique* (1850; 2d edition enlarged, Brussels, 1854).

OFEN. See BUDA.

OFFENBACH, the chief manufacturing town of Hesse-Darmstadt, on the S. bank of the Main, 4 m. S. E. from Frankfort; pop. about 13,000. It has manufactories of cotton and woollen fabrics, carriages, cards, musical instruments, jewelry, &c.

OG, king of Bashan, one of the two kings of the Amorites who withstood the invasion of the Israelites under Moses. He was utterly defeated at Edrei, and all his cities, threescore in number, were taken, and his kingdom was given to the half tribe of Manasseh. In stature he was a giant, his bedstead, which was kept in Rabbath-Ammon, being 9 cubits in length and 4 in breadth.

OGDEN, Aaron, governor of New Jersey, born in Elizabethtown, N. J., Dec. 3, 1756, died in Jersey City, April 19, 1839. He was graduated at Princeton college in 1773. In 1777 he joined the army, and served with distinction during the whole revolutionary war. After the war he practised law; was a presidential elector in 1800, and was appointed one of the commissioners for adjusting the disputed boundary between the states of New York and New Jersey. From 1801 to 1803 he was U. S. senator; in 1812 was governor of New Jersey; and for the remainder of his life was engaged in the practice of his profession.

OGDENSBURG, a village of Oswegatchie township and port of entry of St. Lawrence co., N. Y., on the St. Lawrence river, at the mouth of the Oswegatchie, opposite Prescott, C. W., and 210 m. N. N. W. from Albany; pop. in 1860, 7,413. It is at the foot of sloop navigation upon the great lakes and the St. Lawrence, and is the W. terminus of the northern railroad extending to Rouse's Point, at which there are connections with New York and Boston. It has an active coast trade and some manufactories, the Oswegatchie river furnishing water power. It contains a custom house, town hall, an armory, an academy, and several churches. The exports for the year ending June 30, 1859, amounted to $356,251, and the imports to $1,017,281; clearances 283, tonnage 146,405, of which 136 were American, tonnage 115,106; entrances 282, tonnage 145,355, of which 135 were American, tonnage 114,201. The aggregate tonnage of the district is 7,979. The village is connected with Prescott by a steam ferry.

OGGIONE, or Uggione, Marco da, an Italian painter, born in Oggione, near Milan, about 1470, died in 1530. He was a pupil of Leonardo da Vinci, and according to Lanzi one of the best painters of the Milanese school. He worked in oil and in fresco. His chief works are the frescoes executed for the church della Pace in Milan, and now deposited in the Brera in the same city. At the present day he is perhaps best known by his celebrated copy of Da Vinci's "Last Supper," executed about 1510 for the refectory of the Certosa di Pavia, and now in the royal academy in London. Having been painted when the original was in a perfect state by a favorite pupil of Da Vinci, it is justly considered to give a far better idea of Leonardo's masterpiece than the few remains of the work itself that are visible.

OGILVIE, James, a Sotchman of noble family, born about 1760, died in Aberdeen, Sept. 18, 1820. Emigrating to America, he became embarrassed in his resources, and founded a classical academy at Richmond, Va., where he taught many pupils who afterward became celebrated. Among these were Gen. Scott, General and Commodore Jones, the Hon. William S. Archer, and others widely known in the national councils. After some years spent in Virginia, he retired to the backwoods of Kentucky, where, alone in a rough log cabin, he composed a series of striking lectures which were repeated with great applause in Virginia and throughout the Atlantic states. At this time he publicly renounced the infidel opinions which he had previously held, but probably returned to them eventually. His relative, the earl of Findlater and Airy, dying without children, he returned to Scotland, and claimed the title. On his way he lectured in London before the Surrey institution, his fame in America having reached England. The attempt ended however in failure. The habitual use of narcotics had undermined his intellect, and he retired in confusion from the hall. Soon after reaching Scotland, worn out in body and mind, he perished probably by his own hand.

OGILVIE, John, a Scottish divine and poet, born in Aberdeen in 1733, died in Midmar, Aberdeenshire, in 1814. He was educated at the Marischal college in Aberdeen, and in 1759 was settled as minister of the parish of Midmar, with which he remained connected during the remainder of his life. He wrote "The Day of Judgment," a poem (1758); "Providence, an Allegorical Poem" (1763); "Solitude, or the Elysium of the Poets" (1765); "Paradise," and other poems; and also various critical and theological works, including "An Inquiry into the Causes of Scepticism and Infidelity in all Times" (1783), "The Theology of Plato compared with the Principles of the Oriental and Grecian Philosophers" (1793), &c. He was a man of undoubted genius, but, according to one of his biographers, used his powers with little effect, and "wasted his intellectual wealth and industry in huge and unhappy speculations."

OGILVY, John, a Scottish poet and geographer, born in Edinburgh in 1600, died in London, Sept. 4, 1676. While a boy he removed with his parents to London, where he subsequently adopted the profession of dancing master, in which capacity he was employed by the duke of Buckingham and other noblemen. Through the influence of the earl of Strafford he was appointed master of the revels in Ireland; but the civil wars having ruined his prospects in that country, he returned to England, and to remedy the defects of his early education went through a course of study at Cambridge. In 1649 he published a metrical translation of Virgil; in 1651 "The Fables of Æsop, paraphrased in Verse," with commendatory verses by Sir William Davenant and James Shirley; in 1655 a second volume of translations from Æsop, with some original poems; and in 1660 a metrical translation of Homer, which was a favorite with Pope in his younger days, and may have suggested his own translation. In the last named year he produced a fine edition of the Bible accompanied by plates. At the restoration he was reappointed master of the revels in Ireland, but was ruined by the fire of London, and being named cosmographer and geographic printer to the king, published 9 volumes of a great descriptive "Geography of the World," and obtained the privilege of disposing of them by lottery; of these, "America" (fol., London, 1671) is curious and valuable.

OGINSKI, a princely family of Lithuania, various members of which have played an important part in the history of Poland, especially in the 18th century. At the beginning of that century, when Charles XII. of Sweden, in his war against Peter the Great and his allies, invaded the country, a bloody feud of the family against the rival house of the Sapiehas was terminated by a victory of the latter. The following Oginskis distinguished themselves in a more recent period. I. Michał Kazimierz, born in Warsaw in 1731, died there in 1803. He lived for some time on his estate at Slonim, surrounded by a circle of scholars and artists, of whom his own accomplishments, especially in music, made him a worthy compeer. He subsequently joined the patriotic movement of the confederation of Bar against the Russians, and became an exile at the first division of Poland in 1772; but having in 1776 gained liberty to return, and recovered a part of his confiscated estates, he was still able to construct at his own expense the canal which bears the name of his family, dying shortly before its completion. This canal connects an affluent of the Niemen with an affluent of the Pripetz, the tributary of the Dnieper, and thus forms a link for direct navigation between the Baltic and Black seas. II. Michał Kleofas, nephew of the preceding, born in Warsaw in 1765, died in Italy in 1831. He was deputy to the Polish diet, envoy extraordinary to the government of the Netherlands, and in 1794, on the outbreak of the revolution under Kosciuszko, commander of a regiment of volunteers equipped at his own expense. After the fall of Praga and the final extinction of Polish independence, he made unsuccessful attempts to gain the assistance of the French republic and the Porte in projects for the regeneration of his country. In 1802 he accepted an amnesty of the emperor Alexander, and subsequently also a place as secret councillor and senator in his service. In 1815 he settled with his family in Italy, where he acquired great celebrity as a musical composer, especially of polonaises, and also as the author of *Mémoires sur la Pologne et les Polonais depuis* 1788-1815 (2 vols., Paris, 1826), an important contribution to the history of that memorable period.

OGLETHORPE, a N. E. co. of Ga., bounded N. by the Broad river and two of its branches, and S. W. by the Oconee, and drained by a number of creeks; area, 480 sq. m.; pop. in 1859, 11,820, of whom 7,649 were slaves. It has a hilly surface and a generally fertile soil. The productions in 1850 were 445,575 bushels of Indian corn, 99,771 of oats, 76,407 of sweet potatoes, and 12,249 bales of cotton. There were 6 saw mills, a grist mill, 2 tanneries, 2[illegible] churches, and 350 pupils attending public schools. It is intersected by the Athens branch of the Georgia railroad, which passes near the capital, Lexington.

OGLETHORPE, James, the founder of the colony of Georgia, born in Godalming, Surrey co., England, probably in Dec. 1688, died at Cranham hall, Essex, June 30, 1785. He was entered of Corpus Christi college, Oxford, but seems to have been early attracted toward a military career, in which two of his brothers had embarked. In 1714, having for several years held the rank of ensign, he was commissioned an officer in the queen's guards, in which capacity he made so favorable an impression on the duke of Marlborough by his personal beauty, courage, and manly bearing, that the latter recommended him to Prince Eugene, by whom he was appointed one of his aides-de-camp. With Eugene he participated in the campaigns against the Turks in 1716–'17, and took an active command at the celebrated siege and battle of Belgrade. Although invited to remain in the imperial service, he returned in 1722 to England, and in the same year was elected to parliament from the borough of Hazelmere, which he continued to represent during a period of 32 years. The native benevolence of his character was soon after displayed in his successful efforts in parliament to improve the condition of the poor debtors confined in the London prisons, a graceful allusion to which was made by Thomson in his "Winter." Stimulated by his success in this instance, he began to mature a plan for a colony in North America, which should afford an asylum for the oppressed Protestants of Germany and other continental states, "and for those persons at home who had become so desperate in circumstances, that they could not rise and hope again without changing the scene and making trial of a different country." A definite shape was soon given to this enterprise, the credit of originating which belongs wholly to Oglethorpe, and the unoccupied territory lying between Carolina and Florida was selected for the experiment. In June, 1732, 21 "trustees for founding the colony of Georgia" were incorporated by letters patent; and in Jan. 1733, a party of colonists, under the guidance of Oglethorpe, who was appointed governor of the colony, arrived at Charleston. The narrative of his career in Georgia until his final return to England in 1743 will be found in the article Georgia. Charges were brought against him for the failure of the enterprise which he had conducted against St. Augustine, but he was honorably acquitted; and during the invasion of the young pretender in 1745 he was appointed a major-general. He followed the enemy on their retreat with considerable activity, but failed to overtake them. His conduct having again become the subject of official inquiry, he was again honorably acquitted. The remainder of his career, though less marked by active exploits, was rendered conspicuous by the social position which he occupied, his friendship with eminent men, and his vigor of mind and body, which to the very close of his long life gave no indications of decay. Boswell says of him: "This extraordinary person was as remarkable for his learning and taste as for his other eminent qualities; and no man was more prompt, active, and generous in encouraging merit;" and Dr. Johnson thought so highly of his character and public services, that he offered, if furnished with materials, to write the general's life. In 1765 he received the rank of general of all his majesty's forces, and for many years before his death he was the oldest general on the staff. It is said that at the outbreak of the American revolution the post of commander-in-chief of the British forces in America was tendered to him, but that he declined unless authorized to assure the colonies that they should be justly dealt with; whereupon the command was given to Sir William Howe. His interest in American affairs never abated; and he was one of the first to wait upon Mr. Adams, after his arrival in England as ambassador, and express his esteem and regard for America, and his gratification at the termination of the difficulties between Great Britain and her colonies. Of the impression which in extreme old age he made upon strangers the following extract from a letter written by Hannah More in 1784, a few months before his death, will give a favorable idea: "I have got a new admirer; it is Gen. Oglethorpe, perhaps the most remarkable man of his time. He was foster brother to the pretender, and is much above 90 years old; the finest figure you ever saw. He perfectly reallizes all my ideas of Nestor. His literature is great, his knowledge of the world extensive, and his faculties as bright as ever. . . . . He is quite a *preux chevalier*, heroic, romantic, and full of the old gallantry." Not quite half a century before Pope had spoken of him with equal approbation; and nearly every eminent literary man of the age bore testimony to his noble qualities. A memoir of him by the Rev. W. B. O. Peabody is contained in "Sparks's American Biography," second series, vol. ii.

OGLIO (anc. *Ollius*), a river of northern Italy, flowing through Lombardy. It rises in the Rhætian Alps at the foot of Mount Tonale, in the N. E. part of the province of Bergamo, flows S. W. and afterward S. E., passes through Lake Iseo, and after separating the provinces of Bergamo and Cremona from those of Brescia and Mantua, and receiving the waters of the Mello and the Chiese from the N., joins the Po at Torre d'Oglio, 10 m. S. W. from Mantua. It is 130 m. long. During the winter season it overflows the surrounding country.

OGOBAY, a large river of W. Africa discovered by Mr. Du Chaillu in 1856. Previous to his explorations the Nazareth, Mexias, and Fernand-Vaz rivers, which fall into the Atlantic respectively in lat. 0° 41′, 0° 56′, and 1° 17′ S., were supposed to be three independent streams; but he has shown that they are all connected with one another, and that the first two are the mouths of a large interior river called the Ogobay, which also feeds in part the Fernand-Vaz through the Npoulounay and Ogooree. The last two have a course of about 20 m., and join the Fernand-Vaz at the distances of 10 and 15 m. from its mouth. Ascending them, Mr. Du Chaillu reached the Ogobay, which here had a W. N. W. course, and attempted to follow it up to its source. After proceeding about 30 m. he came to a lake 40 m. in circumference, called the Anengue, communicating with the river on the right bank by an outlet 5 m. in length. It has low shores, dotted with several villages, and its surface is diversified with elevated and beautiful islands. In the dry season its waters are shallow. Ranges of hills were seen in the distance, but the adjacent country is level, and the outlet of the lake, in which the current was so strong that the canoes could hardly stem it, frequently overflows. The course of the river here changes from S. W. to W. N. W. About 20 m. above the outlet of the lake Mr. Du Chaillu's guides refused to conduct him further lest he should interfere with their trade, and he was compelled to retrace his steps. He learned enough however from slaves to be satisfied that the river was formed about 100 m. further up by the union of two very large main branches, one coming from the N. E. and the other from the S. E.

OGYGES, a king of Thebes or of Attica, the account of whose life belongs more to mythology than to history. He flourished about 1700 B. C., and during his reign the deluge occurred which is called after him the Ogygian. According to one tradition, he was the son of Bœotus, was king of the Æctenes, and the first ruler of Bœotia, which was named from him Ogygia. The oldest gate of Thebes was called the Ogygian gate. He is likewise connected with the Attic legends, and is described as king of Attica, and father of Eleusis and also of Dæira, usually mentioned as the daughter of Oceanus. By Strabo and Polybius he is spoken of as the last king of Achaia, and some legends made him out an Egyptian monarch.

OHIO, one of the north-western states of the American Union, lying between lat. 38° 17′ and 41° 57′ N., and long. 80° 34′ and 84° 40′ W.; extreme length 255 m., extreme breadth 180 m.; area, 39,964 sq. m., or 25,576,960 acres. It is bounded N. by Michigan and Lake Erie, E. by Pennsylvania and Virginia, S. by Virginia and Kentucky, and W. by Indiana. The Ohio river extends along half of its E. and the whole of its S. boundary, having a course along the borders of the state of 436 m. The lake shore of Ohio has an extent of 230 m., giving the state a whole navigable water frontier of 666 m. Ohio is

divided into 88 counties, viz.: Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clarke, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Green, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, and Wyandotte. The chief cities and towns are Columbus (the capital), Cincinnati, Cleveland, Chillicothe, Dayton, Hamilton, Newark, Portsmouth, Sandusky, Springfield, Steubenville, Toledo, and Zanesville. The population of Ohio in 1800 and at subsequent decennial periods was as follows:

Census years.	Whites.	Colored.	Total.	Increase per cent.
1800	45,028	837	45,865	.....
1810	228,861	1,899	230,760	409
1820	576,572	4,862	581,434	152
1830	928,329	9,574	937,903	61
1840	1,502,122	17,345	1,519,467	62
1850	1,955,050	25,279	1,980,329	30
1860	......	....	2,346,000	18

Of the white population in 1850 (98.72 per cent. of the whole), 1,004,117 were males and 950,933 females; and of the colored (1.28 per cent.), 12,691 were males and 12,588 females. Of the whole, 1,757,556 (88.75 per cent.) were American born, 1,219,432 being natives of Ohio; 218,512 (11.03 per cent.) were of foreign birth; and of 4,261 the origin was not ascertained. Of the foreign-born inhabitants, 111,257 were natives of Germany, 51,562 of Ireland, 25,660 of England, 11,081 of Scotland and Wales, 7,375 of France, 5,889 of British America, and 5,697 of other countries; and of 4,393 the places of birth were unknown. There were 295,453 natives of Ohio residing in other states of the Union. The population was distributed into 348,514 families, occupying 336,098 dwellings. Density of population, 49.55 to the square mile (in 1860, 58.70); proportion to the total population of the Union, 8.54 per cent. There were 947 deaf and dumb, 665 blind, 1,352 insane, and 1,399 idiotic persons. There were 1,077,593 under 20 years of age, 876,108 between 20 and 70, 25,944 between 70 and 100, 58 over 100, and 626 of ages unknown. Occupations of 530,792 males over 15 years of age: 142,687 in commerce, trade, manufactures, mechanic arts, and mining; 270,362 in agriculture; 92,766 in labor not agricultural; 4,109 in lake and river navigation; 9,001 in law, medicine, and divinity; 8,263 in other pursuits requiring education; 1,218 in government civil service; 1,167 in domestic service; and 1,219 in miscellaneous pursuits. Births, 56,884 (2.87 per cent. of the total population); marriages, 22,328 (1.13 per cent.); deaths, 28,949 (1.46 per cent.).—The surface of the state is somewhat diversified, though it has no mountains, presenting on the whole the aspect of a lofty table-land, sinking from 1,000 feet near the centre, where a ridge of low hills forms the water-shed between the rivers of Lake Erie and those of the Ohio, to 600 or 800 feet above the sea on the N. and S. borders. About lat. 40°, a little S. of the middle of the state, there is another range of hills, S. of which lies the most broken part of the state. The belt of land situated between these two ridges is generally flat and in some places marshy. There are prairies toward the N. W. The lake shore is not much indented, though it affords several good harbors, among which are Maumee bay and Sandusky bay. There are several islands in the lake belonging to Ohio. The chief rivers which flow into this great sheet of water from Ohio are the Maumee at Maumee bay, navigable 18 m. by lake steamers; Portage, navigable 12 m.; Huron, navigable 14 m.; Vermilion, Black, Cuyahoga, Rocky, and Chagrine. The smaller streams are principally valuable for their water power, but generally have good harbors at their mouths. The most important tributaries of the Ohio from this state are the Great Miami, which joins it at the extreme S. W. boundary; the Little Miami, Brush, Scioto, Hockhocking, and Muskingum. Several of these have considerable tributaries, and as most of them have moreover long courses, the whole state is abundantly watered. The Great Miami is navigable 75 m., the Scioto 130 m., and the Muskingum 80 m., or at high water 110 m. —The range of the geological formations of Ohio, excepting the drift or bowlder formation found in the northern portion of the state, and the alluvium of the rivers and low lands is included between the coal measures as the upper limit, and the Black river, birdseye, and Trenton group of limestones as the lower limit. The formations are spread over the state in strata so nearly horizontal or gently undulating, that the dip is perceptible only by the passing of one group under another, as the formations are followed over their lines of outcrop. The western half of the state is covered almost exclusively with limestone strata, belonging chiefly to the Niagara group and the lower portion of the Helderberg limestones. In Ohio these formations come together by the disappearance of the Onondaga salt group, which in New York separates them, with its beds of shales, marls, and gypsum of about 1,000 feet in thickness. To this outspread of calcareous strata the western half of Ohio owes its great fertility. In the S. W. corner of the state appear limestones of the lower calcareous group, which are the oldest rocks between the Alleghanies and Missouri. They spread out over a circular area comprising a few counties in Ohio, Indiana, and Kentucky, and disappear in every direction beneath a narrow belt of shales of the Utica slate formation, which intervenes between these older limestones and those of the Niagara group. The E. limit of the great limestone tract is marked by a line passing from Lake Erie through the central portion of Erie co., across the S. E. corner of Seneca co., and thence a little W. from a southern course to the Ohio river in Adams co., nearly opposite Clarksburg, Ky. East of this succeeds a narrow belt of country occupied by the slates and limestones of the Hamilton group, and next to this the shales and flagstones of the Portage and Chemung group spread over a district from 30 to 40 m. in width, its eastern line crossing the Ohio at Portsmouth in Scioto co. Toward the N. this line bends around in a N. E. direction, passing by Cuyahoga falls, and thence through the S. part of Crawford co., Penn. Thus the whole southern coast of Lake Erie for 30 to 50 m. S. E. from the lake is occupied by this group of shaly strata, which further E. forms the chief part of southern New York. It is from these strata that the material of the clay banks along the southern shore of the lake is derived, and the muddy sediment which after heavy storms from the north discolors the waters of the lake far out from the shore. The red sandstones of the upper devonian and the carboniferous limestones do not appear in Ohio, and the conglomerate or millstone grit, the lowest member of the coal measures, is found overlying the Chemung shales. It enters the state from Pennsylvania in the N. E. corner of Trumbull co., and is thence traced in a narrow belt to Cuyahoga falls, where its beds attain altogether a thickness of about 100 feet. The outcropping edge of this rock, which forms the margin of the coal measures, and indeed the basin itself in which the great Appalachian coal field is contained, is traced S. W. through Wayne and Holmes cos., the S. E. corner of Knox co., and across Licking, Fairfield, Hocking, Jackson, and Scioto cos., to the Ohio river a little above Portsmouth. Along its range it forms frequent vertical cliffs upon the summits and sides of the hills. As it sinks toward the E. the coal measures succeed, and gain in depth as the eastern dip continues into Virginia and Pennsylvania. The lowest beds of coal, with their accompanying beds of slates, sandstones, limestones, and iron ore, are thus found near the line of the conglomerate through the range traced out above, and in an easterly direction pass successively beneath the surface, giving place to higher beds which occupy the hills, and disappear in their turn toward the east. The lower portion of the coal measures contains several valuable beds of bituminous coal, and also strata of iron ore and limestone; and it has been estimated that the resources of this portion of the state in coal and iron ore cannot be exhausted in many thousand years. Though the thickness of the coal beds is not great, ranging only from 2 to 9½ feet, the quantity of coal they contain is enormous from the extent of the surface they cover, the whole formation overspreading in eastern Ohio about 10,000 sq. m., and that portion of the coal field bordering on Pennsylvania and Virginia including several workable beds, both above the level of the streams and also at different depths below the surface. One of the most productive beds, which is 9½ feet thick, is worked near the dividing lines of Perry and Hocking cos. The iron ores are worked very extensively in the Hanging Rock district near the Ohio river in Lawrence co., and thence N. in the counties lying E. of the outcrop of the conglomerate. In the more northern of these counties the supplies of ore are not so abundant as in the same measures near the Ohio river; and the deficiency is there made up and the furnaces are kept in blast by the Lake Superior ores delivered at Cleveland, and thence transported by canal and railroad into the interior. (See Iron, and Iron Manufacture.) One important member of the lower coal measures has been referred to in the article Buhrstone. This rock accompanies some of the beds of iron ore, and crops out around the steep slopes of the hills in many of the counties from the Ohio river to Stark co., and thence through Mahoning into Pennsylvania. The width of the belt thus occupied by it is from 12 to 20 m., and the thickness of the stratum is from 2 to 9 feet. The rock is a fossiliferous flinty quartz, cellular and excessively hard, of light gray color, and of stratiform structure. It was employed very largely by the Indians for knives, spear heads, and arrow points, and from Jackson to Muskingum co. are innumerable pits made by the aborigines in extracting the hard stone. The quarries of it in the towns of Richland and Clinton in Jackson co. and in Elk in Athens co., and others in Licking and Muskingum cos., have proved very profitable ever since the year 1807, when the stone was first used for millstones. From 1814 to 1820 stones 4½ feet in diameter sold for $350 a pair, and a pair 7 feet in diameter for $500. In 1834, 4-feet stones sold for $150. The rock goes under the Muskingum river two miles above Connellsville in Morgan co.; and at Connellsville it is bored through 110 feet below water, and 650 feet still deeper is found the salt-bearing rock, which for 12 m. further down the river maintains about the same depth below the surface. In this portion of the state and of the coal measures are many salt wells, and in some places the salt water oozes out in springs at the surface. Such springs are found in the valley of Monday creek in Perry and Hocking cos. In 1858 the product of the salt wells at Pomeroy in this vicinity amounted to 1,000,000 bushels. An inflammable gas issues from some of the springs with the salt water. In Southington and in Wethersfield, Trumbull co., burning wells have been opened from which the gas has issued freely, continuing to burn for days together.

These were in the sandstone strata which underlie the coal formation. Natural oil is also found about Mecca, Trumbull co., and wells have recently been sunk for the purpose of collecting it. (See PETROLEUM).—The soil of Ohio is fertile almost without exception. The marshy tracts are capable of being drained, and when this is done are found very productive. The hills are cultivated to their summits, and scarcely any of the land is too rough for tillage. The river bottoms are particularly rich. The climate is temperate on the whole, though the winters are occasionally severe, and tornadoes occur in summer. The average temperature, owing to the elevation of the surface, is several degrees lower than that of the Atlantic states in the same latitude. The valley of the Ohio is less subject to cold and changes of temperature than the interior. Except in some of the marshy districts the climate is healthy, the ratio of mortality, according to the census of 1850, being lower than it is in Connecticut, Kentucky, Louisiana, Maryland, Massachusetts, Missouri, New York, Rhode Island, or the district of Columbia, and about equal to that of Texas. The gradual draining of the swamp lands, which prove particularly fatal to new settlers, has probably done much to lessen the rate of mortality. In judging from the census returns of the state in general, allowance must be made for the high ratio of deaths in some of the large cities, the proportion in Cincinnati for instance being in 1850 as 1 to 37.—Of the wild animals which formerly abounded in this state, very few are now left. The wolf and bear are occasionally seen in the unsettled parts. Deer, raccoons, several smaller animals, and many kinds of feathered game are plentiful.—Ohio was originally covered with heavy forests of oak, walnut, maple, poplar, ash, beech, and cherry, a large part of which still remain, not more than one half of the state being cultivated or fenced. The cypress is almost the only evergreen tree. All kinds of cereals grow in perfection. Indian corn is more at home in the Ohio valley than in any other part of the United States. Wheat has been produced in larger proportion than in any other state of the Union, though for several years past a variety of diseases and a change (supposed to be only temporary) in the climate have greatly diminished the crop. All the small grains have been raised in large quantities, and the cultivation of the grasses, flax, tobacco, and sorghum has been attended with great success. Peaches and other fruit are abundant and excellent in quality. The culture of the grape has received careful attention, and excellent wines are made at and near Cincinnati. (See CATAWBA WINE.) In 1860 the average size of farms was 84 acres; the number of land owners 310,000; the quantity of improved land 13,105,945 acres, an increase of 33 per cent. in 10 years. In 1859 there were 9,351,921 acres of plough land, 3,754,024 of meadow and pasture, and 12,210,154 of wood or uncultivated. Of the plough land 5,229,938 acres were planted in crops, and 800,000 in orchards, gardens, &c. The average price of land of all kinds was $21 per acre, or nearly equal to the value of land in the best parts of the Atlantic states, and the average sales were 2,024,000 acres per annum. In 1850 Ohio contained 143,807 farms, including 17,997,493 acres (of which 9,851,493 were improved), valued at $358,758,603; and the value of implements and machinery thereon was $12,750,585. The principal crops per acre for a series of years past have been as follows: Indian corn, 34 bushels; wheat, 12 bushels; oats, 24 bushels; hay, 1.36 tons. The total products of these crops have been:

Years.	Indian corn, bushels.	Wheat, bushels.	Oats, bushels.	Hay, tons.
1839.......	33,668,147	16,571,661	14,393,103	1,022,037
1849.......	59,078,695	14,487,351	13,472,742	1,443,142
1850.......	56,619,608	31,000,000	....	....
1851.......	61,171,282	25,809,225	....	....
1852.......	58,165,517	22,962,774	....	....
1853.......	73,436,090	17,118,811	....	....
1854.......	52,171,551	11,819,110	....	....
1855.......	87,587,434	19,569,320	....	....
1856.......	57,802,515	15,333,887	....	....
1857.......	82,555,186	25,397,614	25,000,000	[illegible]
1858.......	50,563,582	17,655,488	8,028,221	[illegible]
1859.......	68,730,846	13,847,967	15,049,969	[illegible]

Of the minor crops in 1859 there were 576,574 bushels of rye, 1,638,577 of barley, 3,042,[illegible] of buckwheat, and 5,000,000 of potatoes. The aggregate production of grain in 1860 was 133,100,178 bushels, an increase in 10 years of 44,643,049 bushels, or 50 per cent. In 1859 the total cereal product was 107,384,740 bushels, on 5,229,938 acres of ploughed land, or an average of 20 bushels per acre. This is ½ more than the average product of France, and greater than that of the best grain-growing countries of Europe. The number of domestic animals in Ohio at different periods was as follows:

Animals.	1839.	1850.	[illegible]
Horses and mules........	430,527	466,980	[illegible]
Cattle..................	1,217,874	1,358,947	[illegible]
Sheep...................	2,028,401	3,942,929	[illegible]
Swine...................	2,099,746	1,964,770	[illegible]
Total...................	5,876,548	[illegible]	[illegible]

The average annual value of farm and dairy products was estimated by the bureau of statistics in 1857 as follows: Indian corn, $3[illegible],000,000; wheat, $20,000,000; oats, $6,000,000; other grain, $2,000,000; potatoes, $2,000,000; hay, $20,000,000; fat cattle, $8,000,000; fat hogs, $5,400,000; marketable horses, $6,000,000; marketable sheep, $400,000; increase of animals, $2,000,000; wool, $3,000,000; dairy produce, $8,500,000; poultry and eggs, $2,000,000; fruit, wine, sugar, and honey, $2,000,000; tobacco, $800,000; flax, vegetables, seeds, and other articles, $4,000,000; total, $128,100,000. —According to the census of 1860, there were 54 iron furnaces, which manufactured [illegible] tons of pig metal; an increase of 100 per cent. in 10 years. The quantity of coal mined was 48,000,000 bushels (increase 600 per cent.

and of salt made 2,000,000 bushels (increase 300 per cent.). The aggregate value of mining products was $8,380,000, an increase of 400 per cent. In 1850 there were 10,622 establishments engaged in mining, manufactures, and the mechanic arts, employing a capital of $29,019,538, giving occupation to 51,489 persons, paying $13,467,660 in wages, consuming $34,677,937 worth of raw material, and producing $62,647,259 worth of goods annually. In 1857 the values of the various manufactured products were as follows: iron, $20,000,000; clothing, $10,000,000; furniture, $4,000,000; carriages and wagons, $1,500,000; spirits, beer, and wine, $6,000,000; cotton, $1,500,000; woollen, $1,500,000; earthenware, $300,000; animal fat, $6,000,000; animal meats, $12,000,000; agricultural machines, $1,500,000; leather, $3,000,000; grain, $8,000,000; wood not included above, $1,000,000; other articles, $43,000,000; total, $119,300,000. The surplus produce of Ohio is exported to the Atlantic markets, nearly ¾ of it by railroad and the remainder by the Mississippi river and the great lakes. Their value exceeds $60,000,000 annually. The principal articles exported, according to the statistical report for 1858, were 2,607,113 bushels of wheat, 2,987,262 of other grain, 1,800,979 bbls. of flour, 377,507 of whiskey, 59,071 of alcohol, 20,427 of beef, 464,457 of pork and bacon, 84,175 of lard, 45,525 of lard oil, 8,735,124 lbs. of butter, 6,736,122 of cheese, 156,096 boxes of candles, 51,728 of soap, 764,560 lbs. of tallow, 740,600 of grease, 118,000 head of cattle, 7,400 horses, 341,595 hogs, 220,657 sheep, 7,572,763 lbs. of wool, 8,700,000 bushels of coal, 20,925,000 lbs. of tobacco, and 18,000 bbls. of eggs. The state carries on a considerable foreign commerce through the ports of Toledo, Cuyahoga (Cleveland), and Sandusky on Lake Erie, and Cincinnati on the Ohio. During the year ending June 30, 1859, the exports amounted to $263,011, $147,057 being in American and $115,954 in foreign vessels, and the imports to $267,846, $196,031 being in American and $71,815 in foreign vessels. The clearances were 226 American vessels, tonnage 38,058, and 190 foreign vessels, tonnage 22,832—total, 416 vessels, tonnage 60,890; and the entrances were 238 American vessels, tonnage 39,824, and 209 foreign vessels, tonnage 23,605—total, 447 vessels, tonnage, 63,429. The tonnage of the state was 125,057, of which 6,548 was registered and 118,509 enrolled and licensed. During the year 52 vessels were built, having an aggregate capacity of 8,530 tons. Of these, 19 were steamers and 28 sloops and canal boats. In addition to a good system of turnpike roads, Ohio has 4 canals constructed by the state, viz.: the Ohio, from Portsmouth at the mouth of the Scioto to Cleveland on Lake Erie; the Miami, from Cincinnati to Toledo; the Hocking, in the valley of the Hockhocking river; and the Muskingum improvement in connection with the Muskingum river; and there are two canals built by incorporated companies, viz.: the Sandy and Beaver and the Ohio and Pennsylvania. The aggregate length of canals and river improvements is 849 m.; of turnpike and plank roads, 3,100 m.; of common roads, 67,000 m. The railroads lying wholly or partly in the state, in 1858, as reported by the commissioner of statistics, were as follows:

Name.	Termini.	Length in miles.	Aggregate cost.
Bellefontaine and Indiana	Gallion and Union City	118	$3,130,694
Central Ohio	Wheeling and Columbus	141	6,687,287
Cincinnati, Hamilton, and Dayton	Dayton and Cincinnati	60	3,582,800
Cincinnati, Wilmington, and Zanesville	Zanesville and Morrow	131	6,250,841
Cleveland, Columbus, and Cincinnati	Cleveland and Columbus	135	4,809,993
Cleveland and Mahoning	Cleveland and Youngstown	67	....
Cleveland, Painesville, and Ashtabula	Cleveland and Erie	95	3,955,239
Cleveland and Pittsburg	Cleveland, Pittsburg, and Belleaire	205	9,003,809
Cleveland and Toledo	Cleveland and Toledo	187	7,456,781
Cleveland, Zanesville, and Cincinnati	Hudson and Millersburg	61	1,574,693
Columbus, Piqua, and Indiana	Columbus and Piqua	72*	2,555,000
Dayton and Michigan	Dayton and Lima	72	3,746,000
Dayton and Western	Dayton and State Line	38	862,000
Dayton, Xenia, and Belpre	Dayton and Xenia	15	960,000
Eaton and Hamilton	Hamilton and Richmond	42	1,403,020
Greenville and Miami	Dayton and Union City	47	888,000
Indianapolis and Cincinnati	Indianapolis and Cincinnati	110	3,159,000
Iron	Ironton and Centre Station	13	172,830
Little Miami and Columbus and Xenia	Cincinnati, Springfield, and Columbus	139	5,659,543
Mad River and Lake Erie	Sandusky and Dayton	215	4,447,000
Marietta and Cincinnati	Marietta and Cincinnati	194	11,250,481
Michigan Southern and Northern Indiana	Toledo and Chicago	589	19,335,680
Ohio and Mississippi	Cincinnati and Vincennes	192	17,810,000
Pittsburg, Fort Wayne, and Chicago	Pittsburg and Chicago	423	16,069,590
Sandusky, Mansfield, and Newark	Sandusky and Newark	125	2,491,600
Scioto and Hocking Valley	Portsmouth and Hamden	56	1,103,975
Springfield and Columbus	Springfield and London	20	346,500
Springfield, Mt. Vernon, and Pittsburg	Springfield and Sackville	60	2,205,000
Steubenville and Indiana	Steubenville and Newark	125	4,772,951
Toledo and Wabash	Toledo and Danville	250	9,015,000
Total		3,948	$154,705,307

* Nearly finished to Union City, 30 miles further.

Of these roads 2,983 m. were within the state limits. Their aggregate capital paid in amounts to $70,638,215. The management of the canals and similar public works is intrusted to a board o. works consisting of 3 members, one elected annually for 3 years. The estimated cost of the public works at the time of their completion was $14,627,549; and the net expense of maintaining them for the 5 years ending with 1860, has been annually a little less than ⅓ of 1 per cent. on this cost, as shown in the subjoined table:

Years.	Receipts.	Expenditures.	Excess of expenditures.
1856	$424,767	$495,479	$70,712
1857	845,720	863,987	18,267
1858	297,354	373,524	76,170
1859	257,820	363,606	105,786
1860	308,935	385,899	76,964

—The banking system of Ohio comprises the state bank (a nominal institution) with 36 branches, having in Nov. 1860 a capital of $4,104,500 and a circulation of $7,403,659; 7 independent banks, capital $632,264, circulation $575,685; and 11 free banks, capital $1,124,600, circulation $655,243. Total capital, $5,861,364; total circulation, $8,634,887.—The present constitution of Ohio was adopted in 1851. The right to vote is secured to every white male citizen of the United States 21 years of age, who has resided in the state one year next preceding the election. The general elections are held every 2 years on the 2d Tuesday of October. The general assembly consists of a senate of 35 members and a house of representatives of 100 members, both elected in districts for 2 years. The executive officers are a governor chosen for 2 years (salary $1,800), lieutenant-governor ($2 a day during the session of the legislature as president of the senate), secretary of state ($1,400), auditor $1,600), treasurer ($1,500), comptroller of the treasury ($1,200), attorney-general ($1,400), and commissioner of schools ($1,500). The judiciary comprises a supreme court of 5 judges chosen by the people for 5 years, one every year, having original jurisdiction in quo warranto, mandamus, habeas corpus, and procedendo, and appellate jurisdiction in other matters; and 43 judges of common pleas, elected for 5 years. The state is divided into 10 common pleas districts, each of which is subdivided into 3 parts, each part electing one or more of the judges. Courts of common pleas are held by one or more of the judges in each county, and district courts by the common pleas judges of each district, with one judge of the supreme court. There are also superior courts of Cincinnati, Montgomery co. (Dayton), and Franklin co. (Columbus); probate courts in every county, and justices' courts in every township of the state. The judges of the supreme court receive a salary of $1,700 each, of the courts of common pleas $1,500, of the superior court of Cincinnati $3,500, and of the superior courts of Montgomery and Franklin cos. $1,500. The receipts and expenditures of the state during the financial year ending Nov. 15, 1860, according to the governor's annual message, were as follows:

Sources.	Receipts.	Disbursements.
General revenue	$806,79[illegible] 40	[illegible]
Sinking fund	1,364,664 15	1,3[illegible] [illegible]
Canal fund	421,874 [illegible]	427,1[illegible] [illegible]
Common school fund	1,2[illegible],506 73	1,2[illegible] 77
School library fund	82,719 75	[illegible] 71
National road fund	14,051 8[illegible]	14,[illegible] [illegible]
Three per cent. fund	19 04	
Total	$3,977,719 13	$3,911,[illegible] [illegible]

Leaving a balance in the treasury of $66,209.15. The value of real estate in 1860 was $639,894,811; value of personal estate, $248,40[illegible]; total value of taxable property, $888,302,401; increase in one year in the value of real estate not in cities and villages, $54,153,987; decrease in the value of real estate in cities and villages, $8,373,680; net increase in the value of real estate, $45,780,307; decrease in the value of personal property, $3,387,657; net increase in the value of taxable property, $42,392,[illegible]. The state levy for all purposes is 39½ cents on $100 of valuation, making for 1861 $3,50[illegible]-712.98, and the local taxes for the same year amount to $7,313,963.41; the total amount of tax levy for 1861 being therefore $10,817,676.[illegible]. The state debt in 1860 was: foreign, $13,97[illegible]-023.58; domestic, $277,210.36; irreducible, $2,677,600.82; total, $16,927,834.21.—The public institutions of Ohio, with their statistics in Nov. 1858, are the following:

Name.	Location.	Date of opening.	No. of inmates.	Annual expense.
Central Lun'c Asylum	Columbus	1835	570	$1[illegible]
Northern " "	Newburg	1855		
Southern " "	Dayton	1855		
Hamilton co. "	....	..	..	..
Deaf and Dumb "	Columbus	1829	150	[illegible]
Inst'tion for the Blind	"	1837	100	14,[illegible]
Asylum for Idiotic and Imbecile Youths	"	1857	[illegible]	
Penitentiary	"	..	[illegible]	[illegible]*
Reform schools	Lancaster, Fairfield co.	1856	1[illegible]†	

The number of convicts in the penitentiary Nov. 1, 1860, was 932. The actual expenditures during the year were $97,610, and the earnings $97,905, leaving a balance in favor of the prison of $295. Each prisoner under the age of 21 and without a common English education receives 3 hours' teaching a day, and each prisoner over 21 one hour's teaching. Corporal punishments are not used, the penalty for disorderly conduct being solitary confinement. Regular good conduct shortens the term of imprisonment. The number of paupers supported by the state in 1859 was 15,148; and the number of criminals convicted was 1,4[illegible], exclusive of 8,567 police offences in cities. According to the report of the commissioner of statistics in 1860, there were 5,237 churches in Ohio, viz.: 584 Baptist, 305 Disciples', [illegible] Episcopal, 75 Evangelists', 98 Friends', [illegible] Lutheran, 1,915 Methodist, 877 Presbyterian, 190 Roman Catholic, 308 United Brethren's

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* Over and above $63 700 earned by the convicts.
† In Nov. 1859.

63 Universalist, and 223 of minor denominations.—The state has always devoted great attention to education. The school fund consists of the proceeds of the congressional grant to the territory of every 36th section of land for common schools, and of two townships, comprising 69,120 acres, for the establishment of colleges. The state also levies a tax for school purposes, and there are local taxes by townships for sustaining high schools, for buildings, &c. During the year ending Aug. 31, 1860, the receipts and expenditures were as follows·

RECEIPTS.

Balance on hand, Sept. 1, 1859	$582,790 57
Fines, licenses, and miscellaneous sources	69,775 18
Irreducible school funds	170,640 45
State tax	1,244,155 89
Local taxes	1,439,539 99
Total	$3,506,901 58

EXPENDITURES.

Teachers' salaries	$2,046,060 92
Sites, buildings, and repairs	457,642 31
Fuel, and all other contingent expenses	257,125 44
Total	$2,760,828 67

The value of school houses in 1855 was $2,229,911; in 1859, $4,409,122; in 1860, $4,707,227. In 1860 the number of school houses was 10,422; public high schools, 161; pupils enrolled in schools, 685,177; average daily attendance, 405,592; teachers employed, 20,731; pupils enrolled in high schools, 13,188; teachers employed, 819. In addition to these are the following institutions:

Character.	Institutions.	Teachers.	Pupils.
Theological	11	83	209
Legal	1	3	80
Medical	10	60	1,110
Commercial	10	20	800
Academies and seminaries	90	404	8.221
Private and parochial schools	185	816	16,132
Universities and colleges	22	129	3.873

The principal collegiate institutions with their dates of foundation are: the Ohio university, at Athens, 1804; Miami university, at Oxford, 1824; Franklin college, at New Athens, 1824; Western Reserve college, at Hudson, 1826; Kenyon college, at Gambier, 1826; Denison college, at Granville, 1832; Oberlin college, at Oberlin, 1834; Marietta college, at Marietta, 1835; St. Xavier college, at Cincinnati, 1840; Wittenberg college, at Springfield, 1845; Urbana university, at Urbana, 1850; Antioch college, at Yellow Springs, 1852; the Ohio Wesleyan university, at Delaware, 1854; the theological department of Kenyon college, 1827; Lane theological seminary, at Cincinnati, 1829; theological departments of Western Reserve college, 1830; of Denison college, 1832; of Oberlin college, 1835; theological seminary of the Associate Reformed church, at Oxford, 1839; Wittenberg theological seminary, 1845; biblical department of Ohio Wesleyan university, 1849; law school of Cincinnati college, at Cincinnati, 1833; medical college of Ohio, at Cincinnati, 1819; medical department of Western Reserve college, at Cleveland, 1844; Starling medical college, at Columbus, 1847; western college of homœopathic medicine, at Cleveland, 1850. There are many well endowed female colleges. A tax of $\frac{1}{10}$ of a mill for school libraries was suspended in 1857, but resumed in 1858, and amounted to $83,920. Exclusive of the school libraries, there are in the state collections and various literary institutions about 150,000 volumes. The state library was established in 1817, and the entire expenditures for its increase and management up to Nov. 15, 1860, were $58,543. The number of volumes is 22,793. The public press in 1850 comprised 261 periodicals, circulating 30,000,000 copies annually. Of these, 26 appeared daily, 10 semi-weekly or tri-weekly, 201 weekly, 23 semi-monthly or monthly, and 1 quarterly.—The first explorations in the territory which now constitutes the state of Ohio were made by the French, the discoveries of La Salle in this region dating from about 1680. The object of the French adventurers, however, seems to have been trade rather than settlement. They were soon involved in disputes with the English, who, having obtained from their sovereign a grant covering part of the territory claimed by the French, sent out surveyors, and established trading posts in the Ohio valley. It was in the war which broke out in consequence of these conflicting claims that Washington first became known; but neither his abilities nor the operations of a powerful force sent out under Gen. Braddock could overcome the French, who kept possession of the country until Canada and the whole country W. to the Mississippi were surrendered by the treaty of 1763. After the war of the revolution disputes arose between several of the states respecting the right of soil in this territory, which were only allayed by the cession of the whole to the United States, Virginia reserving 3,709,848 acres near the rapids of the Ohio for her state troops, and Connecticut a tract of 3,666,921 acres near Lake Erie. In 1800 jurisdiction over these two tracts was relinquished to the federal government, the states retaining the right to the soil, and disposing of it in small lots to settlers (from which sales Connecticut obtained her magnificent school fund), while the Indian titles to the rest of the state were bought up by the general government. In 1787 congress undertook the government, and in 1788 the first permanent settlement was made at Marietta. The first years of the North-West territory, as it was called, were harassed by Indian warfare, which was not terminated until after the signal victory of Gen. Wayne in 1794. In 1799 the North-West territory was organized, and shortly afterward Ohio formed into a separate government. It was admitted into the Union as a state in 1803.

OHIO. I. A N. W. co. of Va., bounded E. by Pennsylvania and W. by the Ohio river, and drained by Wheeling and other small creeks; area, 140 sq. m.; pop. in 1850, 18,006, of whom 164 were slaves. Its surface is hilly and its soil fertile, especially along the Ohio. Most of the land is well adapted to pasturage. Mines of bituminous coal are found among the hills and are extensively worked. The productions in 1850 were 214,020 bushels of Indian corn, 57,709 of wheat, 76,767 of oats, 4,111 tons of hay, 98,590 lbs. of wool, and 104,722 of butter. There were 9 grist mills, 3 saw mills, 4 iron founderies, 2 cotton, 1 woollen, 3 nail, and 5 glass factories, 17 collieries, 3 paper and 2 planing mills, 15 churches, and 3,529 pupils attending public schools. The value of real estate in 1856 was $5,101,033, showing an increase of 26 per cent. since 1850. Capital, Wheeling. II. A W. co. of Ky., bordered on the S. by Green river which is here navigable by steamboats, and intersected by Rough creek; area, about 500 sq. m.; pop. in 1850, 9,749, of whom 1,132 were slaves. It has an undulating surface and a fertile soil, and contains iron ore and coal. The productions in 1850 were 521,128 bushels of Indian corn, 10,607 of wheat, 18,780 of oats, 1,543,692 lbs. of tobacco, and 22,555 of wool. There were 10 grist mills, 5 saw mills, 6 tanneries, 28 churches, and 899 pupils attending public schools. Capital, Hartford. III. A S. E. co. of Ind., separated from Kentucky on the E. by the Ohio river, and bounded N. W. by Laughery creek; area, about 90 sq. m., being the smallest county in the state; pop. in 1860, 5,475. The surface is considerably diversified, rising in some places into high hills, but it is only in very few places that it is too much broken for cultivation. The soil, resting mainly on blue limestone, is fertile both on the hills and in the bottom lands. The productions in 1850 were 269,085 bushels of Indian corn, 45,479 of wheat, 9,718 of oats, 2,023 tons of hay, and 5,801 lbs. of wool. There were 2 saw mills, 2 tanneries, 15 churches, and 2,022 public school pupils. Capital, Rising Sun.

OHIO RIVER, the largest branch of the Mississippi river from the east, known to the early French settlers as *la belle rivière*, and famed for the uniform smoothness of its current as well as for the beauty and fertility of its valley. It is formed in the W. part of Pennsylvania by the junction at Pittsburg of the Monongahela and Alleghany rivers. By the latter the drainage valley of the Mississippi is extended into the southern part of the state of New York, and in Potter co., Penn., reaches a point where over an extent of a few acres it is a mere chance whether the water that falls upon the surface reaches the ocean by the gulf of Mexico, the gulf of St. Lawrence, or Chesapeake bay. The course of the Ohio and of all its tributaries, from their sources W. of the Alleghanies to the outlet of the river in the Mississippi, is through a region of stratified rocks, little disturbed from the horizontal position in which they were deposited, and nowhere intruded upon by uplifts of the azoic formations, such as in other regions impart grandeur to the scenery and variety to the valleys of the rivers. Over an area of drainage of the Ohio and its branches estimated at 202,400 square miles, the topography is uniform in its principal features, and, though often beautiful, still for the most part tame. The valleys are depressions below the general summit level of the country; all of them were eroded by currents of water, and the piles of strata presenting no portions that could resist the action of these, the descent of the river beds is gentle, with no sudden breaks or precipitous falls. The banks, however, are often steep, and in many places, especially upon the smaller rivers, the waters have worn a narrow passage between vertical cliffs of limestone to the depth of several hundred feet from their summits. Generally the rivers spread out to considerable width, and in dry seasons become shoal to the serious impediment of navigation. An interesting feature in the banks of the river is the succession of terraces often noticed rising one above another at different elevations, and sometimes spreading out in broad alluvial flats. Though they are often 75 feet or more above the present mean level of the river, they were evidently formed by fluviatile deposits made in distant periods, when the river flowed at these higher levels. Evidence is altogether wanting to fix the date of these periods. Upon the lower branches of the river, at the level of present high water, are mounds and earth works wonderful in their numbers and extent, which were constructed, as far as can be ascertained from various proofs, full 2,000 years since, the fact being thus established that the river must have flowed at its present level at least so far back. The city of Cincinnati stands upon two of these terraces, the upper one 60 feet above the lower, and this 60 feet above low water of the river. In the gravel of the upper one have been found the teeth of an extinct species of elephant. Shells which have been found at corresponding elevations are of recent species, such as are still common to the waters in the neighborhood.—The total length of the Ohio river is about 950 m.; but from Pittsburg to the mouth of the river in a straight line it is only about [illegible] of that distance. Its course till it passes out of Pennsylvania is a little W. of N. to Beaver, and thence W. to the line of the state of Ohio. It then flows S. between Ohio and Virginia, passing Wheeling, the W. terminus of the Baltimore and Ohio railroad, 92 m. below Pittsburg. The general course of the river is W. S. W. After passing between Ohio and Virginia, it borders the whole length of Kentucky, separating that state from Ohio, Indiana, and Illinois on the N. The width of the river varies from 1,200 to 4,000 feet. Its depth at different seasons is very fluctuating, the range between high and low water being often 50 and sometimes 60 feet. During portions of the summer season and in the autumn, when the water is low, the larger steamboats ascend no further than Wheeling, and even below this point they pass with difficulty, or are arrested by the sand bars, which, with the low sandy islands, called tow heads, badly obstruct the navigation. At the lowest stage the river may be forded at several places above Cincinnati. In the winter it is often frozen over, and for several weeks floating ice prevents its navigation. The rate of its current varies with the stage of the water from 1 to 3 m. an hour. The only rapids are at Louisville, and these are not insurmountable to all the steamboats. In 2½ m. the fall is about 22 feet. A canal was long since constructed past these rapids at Louisville, but being only 16 feet deep it is not sufficiently capacious for the largest boats. —The country bordering the Ohio is for the most part a thriving agricultural region, and many prosperous towns and cities have grown up within the present century on its banks. Manufactures are encouraged by the mines of coal and iron ore that abound in the country traversed by this river and its tributaries, and the products of these add largely to the immense transportation carried on by the boats. The character and extent of these operations are particularly noticed in the descriptions of the several states and large towns on the borders of the river. (See also COAL, and IRON.) —The tributaries of the Ohio from both sides are numerous, and many of them are important rivers, as the Muskingum, Scioto, and Miami of Ohio, the Wabash of Indiana and Illinois, the Sandy, Kentucky, Green, Cumberland, and Tennessee of Kentucky.

OIDIUM ALBICANS. See EPIPHYTES, vol. vii. p. 246.

OIL BIRD. See GUACHARO.

OIL CLOTH. See FLOOR CLOTH.

OIL OF BRICK, an oily preparation used by lapidaries as a vehicle for the emery by which stones are cut. It is made by distilling from a brick the oil in which it has been soaked, and collecting the product.

OIL OF VITRIOL. See SULPHURIC ACID.

OILS (Lat. *oleum*), a class of fatty substances existing in various parts of vegetable and animal bodies, sometimes in a solid form, when they are commonly known as fats, and again in a fluid state, when they are called oils; the fats, however, by increase of temperature become fluid, and most of the oils by increased cold assume in part a solid consistency. The fats are comparatively rare in plants, and abound in warm-blooded animals; but fish and cold-blooded animals produce oils. In plants oil abounds most in the fruits, and especially in the dicotyledonous seeds; and it may generally be separated from the cells of the tissue by simple pressure. Heat may be applied to the bruised seeds to facilitate the separation by making the oil more fluid; and in case of its existing in the form of vegetable fat, boiling the portions of the plant that contain it in water causes the oil to separate and rise upon the surface in a scum, which becomes solid on cooling. By destructive distillation of vegetable matters, and even of the bituminous coals and shales derived from them, the elements hydrogen and carbon may be made to unite to form oils of the class called carbohydrogens or hydrocarbons; and such are elaborated upon a great scale by nature, as is seen in the oil wells of different parts of the world. (See CARBOHYDROGENS, and PETROLEUM.) Beside this class of oils are the two great groups of the fixed and the volatile or essential oils. The former are distinguished by their not evaporating until the temperature is raised to about 500° F., or nearly to their boiling point; and then they give off vapors which are not condensable into oil again, but are new products derived from the decomposition of the oil. The volatile oils readily evaporate, and are generally obtained by distilling with water the substances in which they exist. By ultimate analysis the fixed and most of the volatile oils are reduced to the elements carbon, hydrogen, and oxygen, the proportions of which are not very different in the different oils, ranging generally from 74 to 80 per cent. of carbon, 10 to 13 of hydrogen, and 9 to 12 of oxygen. Nitrogen when detected is supposed to be derived from impurities. In their proximate composition the fats and oils are mixtures of three substances of similar properties; two of them at ordinary temperatures are solid, and are called stearine and margarine, which are themselves compounds respectively of stearic and margaric acids with glycerine; and the third is a fluid body called oleine, also a compound of glycerine with oleic acid. The last named, according to the proportion in which it is present, gives softness and fluidity to the compound. Mutton fat contains a large proportion of the solid ingredients, and the liquid oils are chiefly composed of oleine. The solid ingredients make their appearance in these when they are exposed to cold, as when castor and olive oils become thick in winter, and deposit a white substance beneath the liquid oleine. Hence the difference between winter-strained and summer-strained oils, the latter necessarily retaining more of the stearine and less of the pure oil. The following are some of the marked properties that distinguish the fatty oils, not including the hydrocarbons. They are bodies which leave upon paper a greasy stain, rendering it semi-transparent. In a liquid state, when pure, they are clear and transparent, and sometimes slightly viscid. They are colorless, or if tinged with yellow this disappears by bleaching in the sunlight or by treatment with animal charcoal. If they have a taste or odor, it is owing to the presence in minute quantities of certain acids peculiar to the body from which they are derived. Their specific gravity at ordinary temperatures is for the most part included between .913 and .970; this varies greatly with the temperature of the substance; thus castor oil at 53° has a density of .970, and at 200° it is only .908. They congeal at various temperatures, olive oil at about 32° F. and almond oil at —13°. They are highly inflammable, and their chief use is for illuminating purposes, being used either in the liquid form or in candles prepared from their solid ingredients. (See CANDLE.) Exposed to the air, some of the oils absorb oxygen, thicken, and are finally converted into a solid substance; these are used to mix with paint to hasten its drying and give it solidity. (See DRYING OILS, and LINSEED OIL.) When such oils are scattered even in very small quantity upon heaps of vegetable fibre, as hemp, cotton, paper, or straw, the absorption of oxygen goes on rapidly, especially in a warm place or in the sunlight, and the chemical action is liable to generate heat sufficient to set the mass on fire. Thus have occurred many cases of spontaneous combustion. (See COMBUSTION, SPONTANEOUS.) Their drying property is greatly increased by heating them with about $\frac{1}{20}$ of their weight of litharge, which is dissolved in the oil. The oxide of manganese may be used for the same purpose. Linseed oil thus treated is called boiled oil. Another class of oils by exposure thicken and become acid and rancid, emitting an offensive odor. This is owing to their containing mucilaginous and albuminous matters, which decay and react on the oil, setting free the fatty acids and decomposing the glycerine. By removing the mucilaginous matters in the process of purifying the oils, this change may be prevented. When the fat oils are mixed with water, the two fluids soon separate, the oil rising upon the surface of the water. Some of the impurities of the oils may be separated by shaking the two liquids together, when they remain with the water. Ether, oil of turpentine, and benzole particularly are solvents of oil, and the last named has recently come into use for removing greasy stains from fabrics. In alcohol the fatty oils are soluble only to a certain extent. Ammonia unites with them, forming a soapy liquid, called volatile liniment, used in medicine as a rubefacient. When heated with potash or soda the fatty bodies are decomposed, their acids uniting with the alkali, and the glycerine base being set free. This is the process called saponification or soap making, and the soap is the compound of the acids of the fat with the alkali introduced. (See SOAP, and GLYCERINE.) Beside the uses already named for oils, they are employed in manufactures for dressing cloth, and for lubricating machinery. (See LUBRICANTS.) In medicine a great number obtained from as many different sources are variously exhibited, both externally in different preparations, and also internally.—Most of the important oils are described under their own names in this work, together with the manner of collecting and using them.

OINTMENT, in pharmacy, a mixture of fatty and waxy substances of the consistency of butter, used as a dressing for sores, blisters, &c., and also as a vehicle for the application of other substances as rubefacients or caustics. To preserve the whiteness of lard ointments, as well as to prevent their becoming rancid, it is recommended to add 4 parts by weight of powdered benzoin to each 100 parts of melted fresh lard. This also protects the lard from the action of any alkaline ingredients of the ointment. The infusion of $\frac{1}{4}$ part of poplar buds in the ointment causes it to resist oxidation.

OISE, a department in the N. E. of France, formed from parts of the old provinces of Isle de France and Picardy, and bounded N. by Somme, E. by Aisne, S. by Seine-et-Marne and Seine-et-Oise, and W. by Eure and Seine-Inférieure; area 2,218 sq. m.; pop. in 1856, 396,085. The chief rivers are the Oise, from which the department is named, and its tributaries the Serre, Lette, Aisne, and Nonette, all of which join it from the left. Beside these, the Epte passes through the W. and the Ourcq through the S. E. The surface is low and undulating, and the soil consists in general of strong clay, but there are sandy barrens. The wine produced is of inferior quality, and the vineyards are decreasing. Woollens, linen, canvas, beet root sugar, &c., are manufactured. The Oise, Aisne, and Ourcq are navigable in the department for 82 m.; there are two canals having a total length of 21 m.; and a railway traverses the department for 43 m. Capital, Beauvais.

OISE (anc. *Isara*), a river of France, which rises in the province of Hainaut in Belgium, near the French frontier, flows S. W. through the departments of Nord, Aisne, Oise, and Seine-et-Oise, and joins the Seine on the right bank, 12 m. below Paris, after a course of about 140 m. Its principal tributaries are the Noirieu, Brèche, and Thérain on the right, and the Ton, Serre, Lette, Aisne, Automne, and Nonette on the left. The Oise communicates by canals with the Somme, the Sambre, and the Scheldt.

OJIBWAYS. See CHIPPEWAS.

OKA, a river of central Russia, one of the principal tributaries of the Volga. It rises about 40 m. S. W. from Orel, in the government of the same name, passes that town, and flowing with a swift current N., N. E., S. E., and N. E. through the governments of Tula, Kalooga, Moscow, Riazan, Tambov, Vladimir, and Nijni-Novgorod, joins the Volga at the town of Nijni-Novgorod. Its total course is 650 m., for almost the whole of which it is navigable. It has several considerable tributaries. The Ivanovska canal connects it with the Don.

O'KEEFFE, JOHN, an Irish dramatist, born in Dublin, June 24, 1747, died in 1833. He was originally designed for a painter, but early turned his attention to dramatic composition and acting, and at the age of 15 wrote a comedy. Having obtained an engagement at the Dublin theatre, he acted there and in adjoining towns for 12 years. About 1780 he went to London, but, failing of employment as an actor, applied himself to writing, and between 1781 and 1798 composed nearly 50 comedies, comic operas, and farces. Several of these were very popular, especially "The Castle of Andalusia," "Wild Oats," "The Poor Soldier," "The Young Quaker," and "Peeping Tom." In his 50th year O'Keeffe became blind. In 1826 he published his "Recollections, or Autobiographical Memoirs."

OKEN, Lorenz, a German naturalist, the founder of the transcendental or physio-philosophical school of natural science, born in Bohlsbach, Würtemberg, Aug. 1, 1779, died in Zürich, Aug. 11, 1851. His real name was Lorenz Ockenfuss, which he abridged to Oken when he became a private teacher at Göttingen, having previously studied natural history and medicine at the university of Würzburg. In 1802 he published his *Grundriss der Natur-Philosophie* (8vo., Frankfort), in which he reduced to a system the materials which Fichte and Schelling had previously undertaken, but with little success, to arrange; in this he maintained that animal classes are simply a representation of the organs of sense, and divided the animal kingdom accordingly into 5 classes. In *Die Zeugung* (Frankfort, 1805) he advanced the doctrine that all organic beings originate from and consist of vesicles or cells, remarkably agreeing with the results of recent microscopical science. In his *Beiträge zur vergleichenden Zoologie, Anatomie und Physiologie* (Würzburg, 1806) he demonstrated that the intestines originate from the umbilical vesicle, and that this corresponds to the vitellus or yolk bag, which C. F. Wolff had before proved in the chick; he in the same work described the *corpora Wolffiana* or primordial kidneys. In 1807 he accepted the appointment of extraordinary professor of the medical sciences in the university of Jena, giving for his inaugural discourse the famous essay *Ueber die Bedeutung der Schädelknochen*, or "On the Signification of the Bones of the Skull;" the origin of this idea of the cranial vertebræ, and the other doctrines above alluded to, may be found in the articles Comparative Anatomy and Philosophical Anatomy. This lecture was delivered in the presence of Goethe, from whom Oken has been most unjustly accused of borrowing its central idea; for an account of the controversy on this subject, and for a complete vindication of Oken, see the sketch of his life by Owen in the "Encyclopædia Britannica" (1858). Oken's lectures at Jena embraced almost every department of natural science, and were highly esteemed. In 1808 he announced the propositions that organism is a combination of the activities of the universe within a single individual body, and that world and organism are one in kind; that light is only a polar tension of the ether evoked by a central body in antagonism with the planets, and heat only the motion of this ether—thus anticipating the doctrine of the correlation of physical forces. He extended his system also to the mineral world. The 1st edition of his *Lehrbuch der Naturphilosophie* was published in 1809–'11, a 2d in 1831, and a 3d in 1843; the last was translated into English by Dr. Tulk (London, published by the Ray society, 1847). In 1810 he was made court councillor, and in 1812 ordinary professor of natural sciences at Jena. In 1816 he commenced the publication of his celebrated periodical, the *Isis*, devoted principally to natural science, but occasionally commenting on the politics of the German states; the criticisms on the latter led to complaints, and the court of Weimar required him either to suppress the *Isis* or to resign his professorship; he chose the latter alternative, and published his journal (prohibited at Weimar) at Rudolstadt uninterruptedly until 1848. A further attempt was made to crush his independent spirit by accusing him of being a member of a forbidden secret democratic society; he was tried and acquitted, and thereupon retired to private life, occupying himself with his scientific pursuits, and publishing several important works, beside his numerous contributions in the *Isis*. In 1821 he originated the annual general meetings of German naturalists in different cities, the first of which was held at Leipsic in 1822, and which have been continued to the present time; the British and American associations for the advancement of science have been since then instituted more or less after the German model. In 1828 he resumed his occupation of private teacher in the newly established university at Munich, and was soon after appointed professor in the same. In 1832, on the proposition of the Bavarian government to transfer him to a provincial university, he resigned his appointments and left the kingdom; he retired to Switzerland, and in 1833 was appointed professor of natural history in the recently established university of Zürich, which position he retained, contributing largely to his favorite science, until his death. A statue has been erected in his honor in the university of Jena. His views on philosophical anatomy, as illustrating the all-in-all and the all-in-every-part, will be found under that title.

OKHOTSK, a Russian province of eastern Siberia; pop. about 7,000. It is a narrow tract along the shore of the sea of Okhotsk, from 80 to 200 m. broad and about 1,000 m. long. Its coast line is indented by several arms of the sea, and its interior is traversed nearly throughout its length by the chain of the Stanovoi mountains. The climate is severe, but there are large tracts of heathy pasture and scattered clumps of trees, chiefly of alder and birch, frequented by numerous animals valuable for their furs. The coasts are well supplied with fish. The only domestic animals are reindeer and dogs. The territory is chiefly used as a penal settlement for the most hardened offenders, and the inhabitants consist for the most part of them or their descendants.—Okhotsk, a town in the above province, is situated on a narrow tongue of land projecting into the sea, at the mouths of the Okhota and Kukhtui rivers, lat. 59° 21′ N., long. 142° 45′ E.; pop. 957. It consists of a collection of ill built log houses, standing on a low shingly beach; there are a government house, hospital, church, and storehouses. It is a station of the Russo-American trading company, who bring furs hither from America, on their way to Kiakhta to exchange for Chinese goods. There is a yard for repairing ships, but the harbor is very inferior

OKHOTSK, Sea of, an arm of the N. Pacific ocean, between Kamtchatka and Siberia. It is about 1,000 m. long and 500 broad, and contains several islands, the largest of which, Saghalien, is situated near its S. W. shore. There are numerous gulfs in this sea, and several rivers fall into it, the greatest of which is the Amoor. The shores are covered with ice from November to April, but the main expanse continues open throughout the year. It is generally deep, without shoal or sand bank, and is subject to fogs and storms. The sea of Okhotsk is annually visited by numbers of American whale ships, in pursuit of whales, which are sometimes found here in great abundance.

OKRA (*Abelmoschus esculentus*, Wight and Arnott), a plant, the unripe pods of which are used in some parts of the United States as a vegetable, being sliced and added to soups to render them more glutinous. It is the same as the gombo of the West Indies, being there employed both for the thickening of soups and as a vegetable, or even for pickling like capers. Another species with similar properties is employed for the same purposes in the East Indies, both belonging to the natural order of *malvaceæ*, the prevailing quality of which is mucilaginous. The okra has a smooth stem 4 to 5 feet high, cordate, 5-lobed, toothed leaves; deciduous, spathaceous, 10-bracted calyx, bursting on one side; pale yellowish flowers; and a 5-celled pod about 6 inches long, opening into 5 loculicidal valves, and filled with many roundish seeds, which when ripe and roasted are sometimes ground and used for coffee. The okra is raised by sowing the seeds from April till June, in drills an inch deep, dropping the seeds about 8 inches from one another, and earthing up the plants 2 or 3 times in the season.

OLAF, a saint and king of Norway, killed in battle, Aug. 31, 1030. He was the son of Harald Grânske, and grandson of the famous Harald the Fair-Haired, and was educated by Sigurd Syr, the chief of an upland district, who married the young prince's widowed mother. At the age of 12 Olaf was intrusted with the command of a piratical expedition to the British coasts, where he assisted the Anglo-Saxons in opposing the Danes; and at the age of 16 he had been engaged in 9 great battles. In the course of his career as a viking or sea rover, he was led to Sweden; and on one occasion, being blockaded by the Swedes within the Maelar lake, he effected his escape by cutting a canal to the sea. For the next two years he infested the shores of France and Spain; and at length returning to Norway during the absence of Eric, then engaged in the wars of Canute in England, he took possession of the throne (1014), to the great joy of the Christians, and soon rendered the kingdom independent of both Sweden and Denmark. In his zeal for the Christian faith, into which he had been baptized in infancy, he burned the heathen temples, erecting churches on the ruins, and marched through his dominions at the head of an army, compelling submission to the new faith. He forbade all piracy, and enforced his law so rigorously that, although the vikings were sons of his most powerful subjects, he punished the offenders with loss of life or limb. His severity could not fail to provoke rebellion. While engaged in quelling this, he was suddenly attacked in his capital, Drontheim, by Canute the Great of England and Denmark, who laid claim to the crown of Norway, landed an army at Drontheim, and effected an easy conquest of the kingdom. Olaf fled with his infant son Magnus to Russia; but two years afterward (1030), assisted by his wife's brother, the king of Sweden, he entered Norway from beyond the N. W. frontier, gave battle to the Danish faction near Drontheim, and fell in the thick of the fight, with most of his followers and kinsmen. The body of the king was discovered by one of his faithful adherents, and secretly buried. It was afterward disinterred and deposited in a chapel, which Olaf had built at Drontheim upon the ruins of the temple of Thor, and which was the foundation of the present cathedral. The spot upon which the king fell was long marked by a rude cross, which has been replaced by a monument erected by the society of northern antiquaries. The tomb and the battle field became the resort of pilgrims from all Europe, and miracles were reported as performed at his tomb.

OLAND, or Oeland, an island in the Baltic belonging to Sweden, from which it is separated by a narrow strait called Calmar sound. area, 600 sq. m.; pop. 33,000. The island contains several villages, of which Borgholm, the capital, is the chief. The E. shores are high and steep, and the W. low. The interior is diversified by sand hills, and in the N. there are a few small lakes. A great part of the surface is covered with fine forests; and a strip of land along the coast is cultivated. Cattle and sheep are extensively reared. Oland is famous for its breed of diminutive ponies. The people are chiefly employed in fishing and navigation. There is an alum mine which employs about 300 hands.

OLBERS, Heinrich Wilhelm Matthias, a German physician and astronomer, born in Arbergen, near Bremen, Oct. 11, 1758, died in the latter place, March 2, 1840. His life was devoted to the practice of medicine and the study of astronomy, the latter of which he pursued in an observatory erected by himself in Bremen, which was at the time of its construction one of the most complete in Germany. His writings on either subject were few and of little importance in comparison with his observations, particularly in astronomy. A series of these on the comet of 1779 first brought him into notice, and he subsequently discovered a method of calculating the orbits of comets, which was considered superior to those previously in use. By this method he computed the orbits of the comets of 1781, 1795, 1798, 1799, 1802, and of the great one of 1811. Of still greater importance were his investigations respecting the existence of the small planets whose orbits lie between Mars and Jupiter. Kepler had suggested that a planetary body might occupy this space; and with a view of verifying this suggestion by actual examination, an association of 24 astronomers including Olbers was formed, who divided up the zodiac among themselves for independent scrutiny. On Jan. 1, 1801, the small planet Ceres was discovered by Piazzi of Palermo, who was not a member of the association, moving in an orbit between Jupiter and Mars; and on March 28, 1802, Olbers discovered in the northern part of the constellation Virgo the planet Pallas, having a mean distance from the sun about the same as that of Ceres. This led Olbers to conjecture that they were fragments of a larger planet once existing there, and that probably other portions might be found moving in nearly the same orbit. He accordingly set himself to exploring carefully, every month, the two opposite regions of the heavens in which the orbits of the new planets intersected, and where he supposed the fragments of the shattered planet must pass. In Sept. 1804, M. Harding of Bremen accidentally discovered a 3d planet, Juno, the nodes of whose orbit were nearly coincident with those of Pallas. This confirmed Olbers in his hypothesis, and he continued his search with renewed ardor. Rarely has so bold a conjecture been so well rewarded; for on March 29, 1807, he discovered a 4th, Vesta. The additional asteroids since discovered seemed at first to confirm the hypothesis of Olbers, but it is now shown that such an origin is scarcely possible. In March, 1815, he discovered near Perseus a comet having no visible nucleus, and in 1826 published a dissertation on the possibility of a collision between a comet and the earth. He subsequently proposed a re-formation of the constellations and a revision of the nomenclature of the stars.

OLD MAN OF THE MOUNTAIN. See Batenites.

OLD POINT COMFORT, a post village and watering place of Elizabeth City co., Va., situated on James river, at the entrance of Hampton roads, 12 m. N. of Norfolk. It is much resorted to in summer for sea bathing, and has commodious hotels. The point is a low, narrow, sandy neck of land, on the extremity of which is Fort Monroe, a formidable structure covering 60 acres of ground. A redoubt thrown forward from its N. W. bastion defends the strip of land which connects the point with the mainland. One mile S. from Fort Monroe, on the other side of the entrance to Hampton roads, an artificial island has been formed upon a mud bank originally covered with 17 feet of water, and upon the foundation thus obtained a fort has been erected.

OLD RED SANDSTONE. See Geology.

OLD TOWN, a township of Penobscot co., Me., on the Penobscot river and on the Bangor, Old Town, and Milford railroad, 12 m. N. from Bangor, and 70 m. N. E. from Augusta; pop. in 1850, 3,087. It contains 4 villages, Upper Stillwater, Great Works, Pushaw, and Old Town. Its principal business is connected with the timber trade. A large boom was placed across the Penobscot some years ago at a cost of $100,000, to prevent timber from floating out to sea. In 1855, 181,000,000 feet of timber was rafted, employing over 300 men, and at one time 600 acres of logs were in the boom. The town has a bank and 7 churches.

OLDCASTLE, Sir John, Baron Cobham, an English reformer, born in the reign of Edward III., put to death Dec. 14, 1417. He acquired the title of baron through his wife, the granddaughter and heiress of Lord Cobham. He fought with distinction in France in the reigns of Henry IV. and Henry V., and was a favorite companion of the latter monarch. Having become a convert to the doctrines of Wycliffe, he employed himself in collecting, transcribing, and circulating them among the people. The rapid progress which the Wycliffite movement made was owing in a large measure to his influence, and Henry V. was more than once importuned to have have him arrested for heresy, but refused out of personal regard for him. The king undertook to reason with him, but he found Oldcastle firm in his opinions. "Next to God," he said, "I profess obedience to my king; but as to the spiritual dominion of the pope, I can pay him no obedience." Henry's toleration could go no further. The nobleman was confined in the tower and condemned to the flames, but made his escape into Wales, and it was reported that 20,000 Lollards would rise in arms under his command. A bill of attainder was thereupon passed against him, a reward of 1,000 marks offered for his head, and exemption from taxes promised to any town that should secure him. He eluded capture for 4 years, but at last was discovered and carried to London, where he was hanged in chains on a gibbet in St. Giles's fields, and roasted to death by a fire kindled under him. He wrote "Twelve Conclusions addressed to the Parliament of England," beside several religious tracts and discourses.—See "Chronicle of the Examination and Death of Sir John Oldcastle," by Bishop Bale (London, 1554; reprinted, 1729).

OLDENBURG, a German grand duchy, comprising the following separate territories:

Divisions.	Area in sq. m.	Pop. in 1858.
Duchy of Oldenburg	2,125	237,188
Principality of Lübeck	170	21,685
" " Birkenfeld,	143	35,486
Total	2,438	294,359

The duchy of Oldenburg is situated on the left bank of the river Weser, which forms its N. E. boundary. It is bounded N. by the North sea, a deep inlet of which forms the Jahde bay; and on the E., S., and W. it is surrounded by the territory of the kingdom of Hanover. The whole country is a perfect level, intersected by several rivers, none of which, with the exception of the Weser, are navigable. Of a number of lakes the largest and most picturesque is the Zwischenahmer sea. One seventh of the area consists of the most fertile bottom land, upon which all kinds of grain, fruit, potatoes, beans, peas, &c., thrive luxuriantly; the remainder of fair arable soil and pasture. Oldenburg is almost exclusively an agricultural country, and its industry is of no great importance. The principality of Lübeck is enclosed by the duchy of Holstein. It consists of the city of Eutin, and one borough and 82 villages grouped around the banks of the lake of Eutin. Up to 1802 it was an independent bishopric. The principality of Birkenfeld lies in the southern part of the Rhenish province of Prussia, on the left bank of the Rhine. (See BIRKENFELD.)—The grand duchy has a common constitution for its three component parts. In the committee of the whole of the German diet it casts one full vote; in the executive committee it casts a vote only in conjunction with the duchies of Anhalt and the principalities of Schwarzburg. Its peace establishment is 3,700 officers and men, forming, together with the quota of the three Hanse towns, the 3d brigade of the 2d division of the 10th army corps of the German federal army. The state debt is $2,800,000. The revenue of the duchy of Oldenburg is $650,000, and its expenditure $700,000 (including its quota of the expenses of the general government of the grand duchy, which amounts to $275,000). The movement of shipping in the grand duchy in 1859 was as follows: vessels entered, 8,318, tonnage 419,030, of which 3,079 vessels and 235,316 tons were foreign; vessels cleared, 8,894, tonnage 456,128, of which 3,122 vessels and 249,528 tons were foreign. The merchant shipping of the duchy in 1859 amounted to 632 vessels, with an aggregate burden of 70,434 tons.—The present territory of Oldenburg proper was originally inhabited by the Chauci, and was afterward overrun by the Saxons. In 1180 the counts of Oldenburg obtained their independence from the dukes of Saxony. In 1448 a son of the late count was elected king of Denmark. The Oldenburg line having become extinct, the country fell to Denmark in 1667. In 1773 Denmark exchanged it for the possessions and claims of the Holstein-Gottorp family in Schleswig-Holstein, and it became an independent state once more. Having been annexed to France in 1811, it regained its independence in 1813, and obtained some territorial accessions (including the principality of Birkenfeld) from the congress of Vienna, which also raised the prince to the rank of grand duke. In consequence of the revolution of 1848 the people obtained a liberal constitution, which however was curtailed in 1852. The present grand duke, Peter, succeeded his father Feb. 27, 1853.

OLDHAM, a parliamentary borough and market town of Lancashire, England, situated on an elevation near the W. bank of the Medlock and the source of the Irk, 7 m. N. E. from Manchester, with which it communicates by railway and canal; pop. of the town in 1851, 52,820; of the parliamentary borough, including Chadderton, Crompton, and Royton, 72,357. Oldham is situated in the midst of a rich coal field, and owes its growth, which is comparatively recent, to its manufacturing facilities. It has a number of handsome churches and other public buildings; a blue coat school with an endowment of more than £100,000; a free grammar school; a lyceum, a mechanics' institute, and a subscription library. The principal branch of industry is cotton spinning, there being in the town and vicinity over 150 mills, mainly for this process. Fustians, velveteens, corduroys, hats, brass and iron castings, rope, leather, and other articles are also made.

OLDHAM, JOHN, an English satirical poet, born in Shipton, Gloucestershire, Aug. 9, 1653, died at Holme Pierpoint, Dec. 8, 1683. He was graduated at Oxford in 1674, was patronized by Lord Rochester, the earl of Dorset, and Sir Charles Sedley, went to London in 1681, and finally devoted himself to poetry and the pleasures of the town. He satirized the Jesuits, was called the "English Juvenal," and was eulogized by Dryden. A new edition of his "Poetical Works," edited by R. Bell, was published in London in 1854.

OLDMIXON, JOHN, an English author, born in 1673, died in London in 1742. After producing several unsuccessful plays, he turned his hand to political writing, and was rewarded by the whigs with the post of collector of the customs at the port of Bridgewater. In the interest of his party he compiled a "Critical History of England," "History of England during the Reigns of the House of Stuart," and "History of England during the Reigns of William and Mary, Anne, and George I.," which have little or no merit. He superintended the first edition of the collection of English historians which appeared under the name of Bishop Kennett. In his "Prose Essay on Criticism" and "Arts of Logic and Rhetoric" (an adaptation from Bonhours), he attacked Pope, who made him conspicuous in the "Dunciad."

OLÉRON (anc. *Oliarius*), an island of France, in the bay of Biscay, separated from the mainland by a strait which in its narrowest part is 1 m. wide, and lying opposite the mouth of the Charente, the N. W. point being in lat. 46° 3′ N. and long. 1° 24′ W.; greatest length 18 m., greatest breadth 7 m.; pop. 16,000. It belongs to the department of Charente-Inférieure, and possesses 5 ports, La Flotte, Saint Martin, La Couarde, Loix, and Ars, beside the towns of Château and Pierre d'Oléron, the former of which is fortified. Except on the W. side, where it is much exposed, the island is generally fertile, producing grain, vegetables, and wine. The inhabitants are engaged chiefly in ship building, salt making, and trade in salt, wine, brandy, and grain. The island was successively the property of the counts of Anjou, the dukes of Aquitaine, the English, the French crown, and the opposite contending parties in the wars of the league.

OLÉRON, Laws of. See Law Merchant, vol. x. p. 357.

OLIN, Stephen, D.D., LL.D., an American clergyman, born in Addison co., Vt., March 7, 1797, died in Middletown, Conn., Aug. 16, 1851. He was graduated at Middlebury college, Vt., and having visited the South for the benefit of his health, was appointed president of the Abbeville seminary, S. C. He subsequently abandoned the study of law, to which he had begun to apply himself, and entered the ministry of the Methodist Episcopal church. He was admitted a member of the South Carolina conference in 1824, and for two years was stationed in Charleston, at the end of which time the state of his health obliged him to desist from preaching. In 1827 he had a supernumerary relation granted him, and was stationed at Athens, Ga. Being relieved entirely from ministerial labors in 1828, his health became partially restored, and he was readmitted into the Georgia conference and appointed professor in Franklin college. In 1833 he was transferred to the Virginia conference, and elected president of Randolph Macon college, where he remained until he sailed for Europe in hopes of recruiting his health by travel. His tour extended over western Europe, Egypt, and Palestine. In 1840 he returned to the United States somewhat improved in health, and in 1842 became president of the Wesleyan university at Middletown, Conn. He was an impressive preacher, and a prominent advocate of the evangelical alliance. He wrote "Travels in Egypt, Arabia Petræa, and the Holy Land" (2 vols. 8vo., New York, 1843), and "Greece and the Golden Horn" (8vo., New York, 1854). His "Works," comprising sermons, sketches, and addresses, appeared in 1852 (2 vols. 12mo., New York), and his "Life and Letters" in 1853 (2 vols. post 8vo.).

OLIPHANT, Laurence, an English author and traveller, born in 1832. He is the only son of Sir Anthony Oliphant, C. B., who is descended from an ancient Scottish family of distinction in Perthshire, and was appointed chief justice of Ceylon in 1838. Mr. Oliphant was educated in England, and at an early age went to Ceylon, where he made the acquaintance of Jung Bahadoor, the Nepaulese ambassador to London, who visited Ceylon in 1850 on his way home, and was invited to accompany him to Catmandoo, the capital of Nepaul. On his return from that country he published "A Journey to Katmandu" (London and New York, 1852), a work remarkable for vivacity and for a maturity of thought scarcely to be expected from so youthful an author. He soon afterward came back from India, studied law at the university of Edinburgh, and was admitted to the bar in Scotland and subsequently in England. In the latter part of 1852 he visited Russia, descended the Volga, traversed the country of the Don Cossacks, and spent some time in the Crimea. His second work, "The Russian Shores of the Black Sea" (London, 1853), appearing on the eve of the Crimean war, was well received by the public, and passed through 4 editions in a few months. Mr. Oliphant was soon after appointed civil secretary to the earl of Elgin, then governor-general of Canada, and went to Quebec, where he was made superintendent of Indian affairs. He travelled extensively both in the United States and in Central America, and gave his impressions on the north-western states of the Union in "Minnesota, or the Far West" (London, 1855). He also published anonymously at this period a pamphlet entitled "The Coming Campaign," in which he gave his views upon the best mode of conducting the war with Russia. This work he republished in 1855, under the title of "The Trans-Caucasian Provinces the Proper Field of Operations for a Christian Army." After his return from America he went to Turkey, and as a correspondent of the press accompanied Omer Pasha in a campaign, of which he gave an account in "The Trans-Caucasian Campaign of Omer Pasha" (London, 1856). In 1857, when Lord Elgin was sent as minister plenipotentiary to China, Mr. Oliphant became his private secretary, and on his return published a "Narrative of the Earl of Elgin's Mission to China and Japan" (London and New York, 1860), an entertaining and instructive account not only of the embassy but of the manners and customs of the Chinese and Japanese. He has since been appointed secretary of legation to Japan. His latest work is "Patriots and Filibusters, or Incidents of Political and Exploratory Travel" (London, 1861). Beside his books of travel, Mr. Oliphant has contributed largely to "Blackwood's Magazine," the "Cornhill Magazine," &c.

OLIPHANT, Margaret (Wilson), a Scottish authoress, born about 1820. She has gained a considerable reputation as a novel writer by the production of a number of tales of Scottish life, distinguished by truth of detail, pathos, and a skilful delineation of character. They include "Passages in the Life of Mrs. Margaret Maitland of Sunnyside" (1849), "Merkland" (1851), "Adam Græme of Mossgray" (1852), "Harry Muir" (1853), "Magdalen Hepburn" (1854), "Lilliesleaf" (1855), a sequel to the first mentioned, and "Zaidee," the scene of which is laid in England. She has also written two shorter tales, "Katie Stewart" and the "Quiet Heart."

OLIVAREZ, Gasparo de Guzman, count, a Spanish statesman, born in Rome, Jan. 6, 1587, died in Toro, July 12, 1645. His father was ambassador at the papal court of Sixtus V. He studied at the university of Salamanca, and through the influence of his uncle, the duke of Uceda, was appointed gentleman of the bedchamber to the prince of Asturias, afterward Philip IV., who soon after his accession to the throne in 1621 bestowed upon Olivarez the title of duke of San Lucar, and appointed him minister in place of his uncle. The new minister proved a despotic ruler, dismissing some of the best servants of the state to make room for his own creatures, and curtailing government expenses only to obtain the means of gratifying his taste for pomp and splendor. He gave some encouragement to manufactures, and in his foreign policy aimed at reconquering the provinces which Spain had recently lost, and restoring the kingdom to her old supremacy in Europe; but in this attempt he had to encounter the superior skill of the French minister, Cardinal Richelieu. Availing himself of the expiration of the truce with Holland concluded in 1609, he reopened hostilities with the Dutch in 1621, and sent Spinola to attack them by land; but the success of this distinguished commander was counterbalanced by the Dutch victories at sea; the Spanish colonies were almost ruined, and the Dutch, assisted by French subsidies, stood their ground so manfully that their enemy was forced to retire from the contest. Meanwhile Spain had been obliged by a coalition between France, Savoy, Venice, and the pope, to which England finally adhered, to give up the Valtelline, which was secured to the Grisons. Olivarez, nevertheless, attempted to make her influence felt in Italy and Germany, while he fostered troubles and conspiracies in France; but in these attempts he signally failed. Spinola, harassed by an unsuccessful campaign in Italy and the reproaches of the Spanish court, died of grief; the Spanish troops sent to assist the Austrians in their struggle against the German Protestants, were worsted at nearly every point; and finally the flame of insurrection, fanned by Richelieu's intrigues, broke out within the Spanish dominions. The province of Catalonia rebelled in 1640, and invoked the assistance of the French; at the same time Portugal threw off the Spanish yoke, and elected Duke John of Braganza as king. Olivarez attempted to make light of the latter event in announcing it to the king; but Philip now began to understand that Olivarez had brought his kingdom to the verge of ruin. When, at the end of two years, he saw that all exertions to recover Portugal were fruitless, and that the last attempt of his minister against Richelieu had failed in the abortive conspiracy of Cinq-Mars, he resolved to dismiss the man who in his name had misruled Spain for nearly 22 years (1621 to 1643). Olivarez was supplanted by his nephew, Don Luiz de Haro, as he himself had supplanted his uncle Uceda. Having published an indiscreet defence of his administration, he was banished to Toro.

OLIVE (*olea Europæa*, Linn.), a branchy, glaucous, evergreen tree, growing about 20 feet high, found wild in the south of Europe, but extensively cultivated, and yielding a very valuable oil. It belongs to the natural order of *oleaceæ*, comprising trees and shrubs, natives chiefly of the temperate latitudes, such as the ash, the lilac, fringe tree, &c. The wild olive has lanceolate, opposite, entire leaves, of a paler color beneath, flowers in short, axillary, compound racemes, 4-toothed calyx, and 4-cleft corolla. From this original type, cultivation has produced varieties and sub-varieties, similar to what are found in the apple and in other fruit trees. The cultivated olive is, however, said to have been brought from Asia into Spain and Italy, in which countries, as well as in all those bordering on the Mediterranean, it has been under culture from time immemorial. Mr. Loudon cites 6 principal sorts, of which he distinguishes the long-leaved chiefly cultivated in France, and the broad-leaved in Spain. In some portions of Italy little else is cultivated, and immense olive groves cover the country. The olive tree has in all ages been held in high estimation. In early times a branch of it borne to the ark by the returning dove, signified to Noah that the waters on the face of the earth were subsiding. Among the Greeks and Romans wreaths of its leaves adorned the brows of conquerors, and it has ever been regarded as the symbol of peace. In the Holy Land and other parts of Syria olive trees abound, and attain to a great age. The fruit is a smooth oval plum of a green or violet color, with a fleshy pericarp, containing a hard nut. It is bitter and nauseous to the taste, but when pickled it loses these properties, and is highly esteemed and extensively used as an article of diet. The pickled olives are chiefly the narrow fruits of a sub-variety known as *pignola*, the *o. oblonga* of Duhamel; these are repeatedly steeped in water, to which some alkali is added to hasten the process, and then taken out and bottled in salt and water with or without an aromatic.—The soils best adapted to the growth of the olive tree are those found upon schistous calcareous declivities situated near the sea. The olive was introduced into the southern part of the United States nearly two centuries ago from Portugal and the Bermudas; and as it is less tender than the orange tree, there is reason to hope that the cultivation of it may be widely extended. Already some success has repaid the labors of those who have given their attention to this matter. The islands on the coast of Georgia and Florida, and the seaboard of South Carolina, are well suited to the cultivation of the olive. The olive tree is raised by sowing the seeds, from cuttings, which grow easily and readily, and from large swellings or knobs called *uovoli*, which are excrescences upon the bark containing embryo buds. These are similar to bulbs, because they are capable of producing new plants. They are carefully separated from the trunk and planted in the ground where intended to grow. Olive trees begin to bear when but 2 or 3 years old, but are not very productive until about 6 years old, when they are of great value. From this period they yield abundantly for many years, even after the trunk becomes quite hollow. One tree near Nice, not long since famous for its remarkable size and great longevity, is said to have measured 38 feet in circumference at the bottom of the trunk, and to have been recorded in 1516 as one of the oldest trees in the neighborhood. Another celebrated tree at Pescio was said to be 700 years old; and there are plantations supposed to have existed since the time of Pliny.—Unlike most other vegetable oils, which are obtained from the seeds of plants, olive oil is contained in the pericarp, and is carefully extracted from it before the seed is pressed. Sometimes the fruit is gathered before it is fully ripe; at others it is allowed to fall from the trees. In the latter case there is danger of its being bruised, when unless used directly the oil has an unpleasant flavor. The olives are crushed in a mill of very simple construction, when the workmen remove the pulp, put it into sacks, and subject it to a very gentle pressure. The first oil extracted, and used for culinary purposes, is of the purest quality, and is called virgin salad oil. The pulp is next thrown into boiling water, from the surface of which the oil is skimmed. Even after this second process a certain quantity is left among the refuse, but being of a very inferior sort it can be used only in making the coarser soaps, plasters, &c. The virgin oil, as soon as it is obtained, is conveyed to a reservoir, where it is kept until required for shipment. The port of Gallipoli, from which so much of the best oil is obtained, owes much of its celebrity to its being built on a rocky island, where fine reservoirs are easily excavated, in which the oil soon clarifies and may remain for years without becoming rancid. In 1843 the province of which Gallipoli is the principal port produced nearly 22,000 tons of oil. In the southern countries of Europe olive oil is extensively used as an article of food, in the arts, and in medicine, and is thought when rubbed into the skin to afford protection to some extent against the plague. The finest sorts are used by watchmakers, as they become viscid more slowly than any other vegetable oil. The best oil is distinguished by its greenish color, and is usually imported from Italy and France in glass bottles, or in flasks covered with a network of grass, called Florence flasks. It has but little smell and a slightly sweetish taste, but by exposure to the air or heat it becomes rancid and disagreeable. Its specific gravity is 0.9153. At 38° F. it congeals in part, but a portion, which is uncombined oleine, remains liquid. The more solid part is a definite compound of oleine and margarine. Olive oil is often adulterated with the cheaper fixed oils, the presence of which is indicated when the oil is reduced to the freezing temperature, the oils used as adulterants not congealing as does the olive oil. Castile soap is made of olive oil mixed with alkalies. A manufacture of this article is carried on at Marseilles. The imports of olive oil into the United States for the year ending June 30, 1859, amounted to $535,975, of which $338,685 worth was from France, and the rest chiefly from Italy.—There is a species of olive tree (*O. fragrans*, Thunberg) much cultivated in China and Japan for its flowers, which are remarkably sweet-scented, and said to be used in giving flavor to tea. The Cape olive (*O. buxifolia*, Miller) is a tall tree, with coriaceous, oblong, dense, and rigid leaves. The devil wood of the United States (*O. Americana*, Linn.) is a beautiful shrub or small tree, 15 to 20 feet high, with oblong or obovate-oblong, smooth, coriaceous, and shining, light green, perennial leaves, narrowing into a petiole and 3 to 6 inches long; small, pale yellow, strongly scented, and fragrant flowers, and round purplish blue fruit, consisting of a drupe as large as a pea, which is bitter and astringent to the taste. It occurs in light rich soils near the coast of southern Virginia and southward, flowering in April and May.

OLIVER, Andrew, lieutenant-governor of Massachusetts, born in 1707, died in Boston, March 3, 1774. He was graduated at Harvard college in 1724, became a member of the general court, and afterward of the council, and in 1756 was appointed secretary of the province. When the stamp act was passed by the English parliament, he made himself obnoxious by accepting the office of distributor of stamps, and on Aug. 14, 1765, was hanged in effigy from the "liberty tree," emblems of Bute and Grenville being suspended beside the figure. Gov. Hutchinson ordered the sheriff to remove the images, but the citizens said: "We will take them down ourselves in the evening." Accordingly, in the evening of the same day, the mob cut down the effigy, and burned it in front of Oliver's house. Oliver was so much alarmed that he appeared the next day before the people under the "liberty tree," and publicly resigned his office. In 1771 he was appointed lieutenant-governor. He was thought to be much under the influence of Gov. Hutchinson, his brother-in-law, and he pursued the same public course, promoting as much as was in his power the designs of the British ministry, as was proved by his letters, which were obtained by Franklin in England, and sent back to America in 1772. When therefore the general court petitioned the king for the removal of Hutchinson, they included Oliver's name also.—**Peter**, chief justice of Massachusetts, brother of the preceeding, born in 1712, died in Birmingham, England, in Oct. 1791. He was graduated at Harvard college in 1730, afterward filled several stations in Plymouth co., and in Sept. 1756, was promoted to the chief justiceship of the superior court. In March, 1774, the house of representatives, voting the judges of the superior court sufficient salaries from the colonial treasury, ordered them to refuse any gifts from the king. Four of them complied, but Oliver refusing, the house impeached him, and suspended him from his functions till the conclusion of his trial. He incurred general odium by his conduct, siding openly with the tories; and when the British troops evacuated Boston, he went with them, and finally removed to England, where his salary, or more likely a pension, was given him by the crown. He was a writer of some talent, and contributed to a tory paper called the "Censor." He was an enthusiastic antiquary, transcribing with his own hand the MS. history of William Hubbard, and carrying away with him when he left America, records and papers which he had collected concerning the early settlement of Plymouth colony.

OLIVES, Mount of, or Mount Olivet (Arab. *Jebel et-Tur*), a mountain of Palestine celebrated in biblical history. It is situated a few hundred yards E. of Jerusalem, separated from it by the valley of Jehoshaphat, through the bottom of which flows the brook Kidron. It is a ridge rather than a single hill, having 3 summits. The centre, a little rounded top on which stands the village of Tur, is 2,786 feet above the sea and 453 above the valley; and being 190 feet higher than the most elevated part of Jerusalem, and only half a mile from the walls, it is before one's eyes from nearly all the streets, and affords the most favorable view of the city. The sides are partly cultivated in terraces, streaked here and there with bare rock, and dotted with the olive trees from which the mountain has its name. It was from this central summit that a very old tradition reports the ascension of Jesus to have taken place; and a church was built here by the empress Helena on the site of one now occupied by the Armenians. The garden of Gethsemane lies on the declivity near the foot of the hill. The central summit is apparently the highest, though according to Maundrell the northern is the highest. Toward the N. the ridge sweeps around to the W. and spreads out into the high level tract of the city. On the S. it sinks down into a lower ridge over against the "well of Nehemiah," now called by the Franks the "Mount of Offence," in allusion to the idolatrous worship established by Solomon "in the hill that is before Jerusalem." From this summit the Dead sea may be seen. On the E. the Mount of Olives overlooks the "wilderness of Judæa," which stretches over a succession of desolate hills for a distance of 10 m., and is then bounded by the valley of the Jordan. The road to Bethany passes over Mt. Olivet. The Saviour used to sit here with his disciples, and retire hither alone to rest and pray. It was here that he delivered some of his parables, and passed the last night before he was seized and delivered up to Pontius Pilate. Many sacred spots are now pointed out to pilgrims on and about the mountain.

OLIVIER, Guillaume Antoine, a French entomologist, born in Fréjus in 1756, died in Lyons in 1814. He was graduated M.D. at Montpellier, afterward gave his attention exclusively to the natural sciences, and undertook to write an illustrated account of the *coleoptera* for a projected entomological history, and a natural history of insects for the *Encyclopédie méthodique*. These labors were interrupted by the French revolution, and in 1792 Olivier and Bruguière were sent by Roland, then minister of the interior, on a commercial and scientific mission to Persia. On his return from his eastern journey, which lasted 6 years, Olivier published a *Voyage dans l'empire Ottoman, l'Égypte et la Perse* (3 vols. 4to., Paris, 1801–7). The first part of his *Histoire naturelle des coléoptères* appeared in 1789, and the work was brought to a conclusion in 1808, in 6 vols. 4to., with 363 plates. His more bulky *Dictionnaire de l'histoire naturelle des insectes* (9 vols. 4to., 1789–1819) was in such a state of forwardness at his death as to permit his coadjutors Mauduyt, Latreille, and Godard to complete it. He was elected a member of the academy of sciences in 1789.

OLLA PODRIDA (Span., putrid mess), the name of a Spanish national dish, consisting of several kinds of meat cut up into small pieces, and stewed with a variety of vegetables. The dish is a great favorite with the poor, and is kept so long that its odor and flavor become highly offensive, and from this it has derived its name. It also signifies a vase of flowers of various kinds, and is commonly used, like *potpourri*, metaphorically to denote a medley.

OLMSTED, Denison, LL.D., an American savant, born in East Hartford, Conn., June 18, 1791, died in New Haven, Conn., May 13, 1859. His father died when he was only a year old, but he was carefully instructed by his mother. From his 12th to his 16th year he was a member of Gov. Treadwell's family, and a part of the time a clerk in a store of one of the governor's sons. He was graduated at Yale college in 1809, and almost immediately took charge of the union school at New London. In 1813 he was chosen a tutor in Yale college, soon after which he began the study of theology with a view to the ministry. His plans were changed, however, by his appointment in 1817 to the professorship of chemistry, mineralogy, and geology in the university of North Carolina. Here he distinguished himself by proposing and executing the first state geological survey ever attempted in this country. Though made by authority of the state, his services were rendered gratuitously. The report was published in 1824 and 1825. In the latter year he was appointed professor of mathematics and natural philosophy in Yale college; in 1836 the professorship was divided at his request, and he retained the department of natural philosophy. In 1831 he published the first volume of a treatise on natural philosophy which he had prepared for his classes, and which soon became a popular college text book. The 2d volume followed a little more than a year later, and very soon after a "School Philosophy," abridged from the larger book, which has had a very large sale. In 1839 he published a treatise on astronomy for college use, and the next year a "School Astronomy." In 1842 appeared his "Rudiments of Natural Philosophy and Astronomy," intended as a primary book, and not long after his "Letters on Astronomy," prepared at the suggestion of the Massachusetts board of education. At the time of his death he had made considerable progress in a revision of these text books, demanded by the subsequent progress of science. In addition to his professional duties, he devoted much time to the prosecution of other kindred branches of physical science. As early as 1830 he prepared and published an elaborate theory of hail storms, which called forth much discussion, but finally received the general approbation of meteorologists. The extraordinary shower of shooting stars which fell in Nov. 1833, attracted his attention, and he pursued his investigations into their history and phenomena for many years, till he had satisfactorily demonstrated their cosmical origin. In 1835 Prof. Olmsted and Prof. E. Loomis, then a tutor at Yale, were the first American observers of Halley's comet. Prof. Olmsted made a series of observations for several years on the aurora borealis, the results of which are given in the 8th volume of the "Smithsonian Contributions to Knowledge." Possessing a considerable degree of mechanical talent, he used it in promoting and perfecting the inventions of others, and occasionally in the invention of articles which would enhance the comfort or convenience of the community. Very few of these inventions were secured by patent. One was a stove, long known as the Olmsted stove.

OLMSTED, Frederic Law, an American author and landscape gardener, born in Hartford, Conn., Nov. 10, 1822. He studied engineering and the sciences bearing on agriculture during parts of 1845 and 1846, at Yale college, and then engaged himself as a laborer on a farm in central New York, with the view of learning the practical details of farming. Subsequently he managed a farm of his own on Staten island, at the same time writing for periodicals on rural subjects, and enjoying the friendship of Mr. Downing and others, who were then drawing public attention to the arts of landscape gardening and domestic architecture. In 1850 he made a pedestrian journey through Great Britain and portions of the continent, with the purpose of observing closely the agriculture and the ornamental grounds of those countries. Some of the results of this journey were embodied in a little work called "Walks and Talks of an American Farmer in England" (New York, 1852). In 1852-'3 he made extended journeys in the southern and south-western states, mostly on horseback, with the view of examining the agricultural resources of those states, and of studying the effects of slavery upon agriculture. His observations and conclusions have been published in three different works: "A Journey in the Seaboard Slave States, with Remarks on their Economy" (New York, 1856); "A Journey through Texas, or a Saddle Trip on the South-Western Frontier, with a Statistical Appendix" (1857); and "A Journey in the Back Country" (1860). In 1855 he made another tour through France, Italy, and Germany, during which he paid especial attention to parks and rural arts. The following year a commission was formed under an act of the legislature for the construction of a large central park in the city of New York, and he was appointed by them as superintendent. In 1857 premiums were offered by the commission for the best plans for the ground, and of 34 plans sent in with sealed names, the highest prize was awarded to that prepared by Mr. Olmsted in conjunction with Mr. C. Vaux, which was adopted for the laying out of the park. Mr. Olmsted was subsequently appointed architect and chief engineer, having thus the duty of organizing the laboring force on the park, as well as of laying out its grounds and watching all the details of its construction. Since that time, from 2,000 to 4,000 men have been generally at work on the grounds, beside those engaged by contractors; and, with but one unimportant exception, there has never been any strike for wages or any disorder whatever among them. Mr. Olmsted made another short European journey in 1859, and is now (1861) engaged on the central park, as well as in laying out the upper part of New York island, and other similar enterprises.

OLMÜTZ (Slav. *Holomauc*), a town of Austria, formerly the capital of Moravia, now of a circle of its name in that province, and one of the principal fortresses of the empire, situated on an island of the March or Morawa; pop., excluding the garrison, 15,000. It is well built, and contains several suburbs, fine squares and promenades, and numerous institutions of learning or benevolence. It is the seat of an archbishop and of various offices of provincial administration. There are some woollen and other manufactures, and an active trade in cattle, which is promoted by large annual fairs visited by traders from Silesia, Galicia, Hungary, Bohemia, and other parts of the Austrian empire. The railway which connects the great Vienna and Breslau and Vienna and Prague lines passes by the town. Among the most remarkable buildings are the cathedral, the church of St. Maurice, containing a celebrated organ, St. Michael's, various convents, the archbishop's residence, the town house with a famous clock, a theatre, and the university. The latter institution, which contains a library with 50,000 volumes, was founded in 1581, removed to Brünn, the new capital of Moravia, during the reign of Joseph II., and restored in 1827.—Olmütz is one of the oldest towns of Austria, its origin being traced to the times of the Roman empire. During the middle ages it received numerous privileges from the margraves of Moravia, the kings of Bohemia, and the emperors. It withstood an assault of the Mongols in 1241, and a siege of Béla IV. of Hungary in 1253; joined the revolt against Ferdinand II. at the beginning of the 30 years' war in 1619; was, during the same war, taken by the Swedes under Torstenson in 1642, and retaken by the imperialists; was taken by the Prussians in the first war of the Austrian succession, but besieged by them in vain during the 7 years' war. Among the numerous prisoners of state who at various periods have been confined in the dungeons of Olmütz, was Gen. Lafayette. After the revolution of Vienna in Oct. 1848, the Austrian court having fled to Olmütz, the emperor Ferdinand resigned there his crowns, and his nephew, Francis Joseph, was proclaimed his successor (Dec. 2). The difficulties between Prussia and Austria arising from the revolutionary movements in Hesse, which in the autumn of 1850 threatened the peace of Europe, were settled by a conference of ministers held at Olmütz in the last days of November in that year. The emperors Nicholas and Francis Joseph met there shortly before the outbreak of the Crimean war in 1853.

OLONETZ, a northern government of European Russia, bounded N. and E. by the government of Archangel, S. by Vologda, Novgorod, and St. Petersburg, and W. by Lake Ladoga and Finland; area about 51,000 sq. m.; pop. in 1856, 285,945, mostly Russians, Finns, and Lapps. The surface is in great part covered by vast forests, marshes, and lakes. Of the latter, beside Lake Ladoga on the border, the largest are Lakes Onega and Vigo. The principal rivers are the Onega, which flows through Archangel into Onega bay, an outlet of the White sea; the Svir, which connects Lakes Onega and Ladoga; and the Vodla, which flows from the lake of the same name into Lake Onega. There are some mountains in the N. W. The winters are very long, and the short summers excessively hot. Agriculture is much neglected; hemp and flax are among the principal articles raised. Fishing and hunting are leading occupations of the inhabitants, foxes, reindeer, badgers, water fowl, and fish being abundant. Pasturage is scarce, and grazing neglected. Some iron, copper, silver, and marble are mined. The principal towns are Petrozavodsk, the capital, on the W. shore of Lake Onega, pop. about 7,000; Olonetz, the former capital, a small town near the E. shore of Lake Ladoga; Vitegra, on a river of the same name; and Kargopol, on the Onega river.

OLSHAUSEN, Hermann, a German Protestant theologian, born in Oldeslohe in Holstein, Aug. 21, 1796, died in Erlangen, Sept. 4, 1839. He studied theology at Kiel and Berlin from 1814 to 1818, when he became private tutor in the latter place, in 1821 extraordinary professor in Königsberg, and in 1827 ordinary professor of theology. In 1834 he went to Erlangen as ordinary professor, and remained there until his death. He devoted his attention chiefly to the exegesis of the New Testament. His *Biblischer Commentar über sämmtliche Schriften des Neuen Testaments* (1830), the most celebrated of his works, was translated into English for Clark's "Foreign and Theological Library;" and an American reprint, revised after the 4th German edition by Professor A. C. Kendrick of Rochester university, was published in 1857 ("Biblical Commentary on the New Testament," 5 vols. 8vo., New York).—Justus, a German oriental scholar, brother of the preceding, born in Hohenfelde, Holstein, May 9, 1800. After receiving his education at the universities of Kiel and Berlin, he went to Paris at the expense of the Danish government, and studied the oriental tongues under Sylvestre de Sacy. In 1848 he was appointed by the provisional government curator of the university and director of the medical faculty, and was elected by the city of Kiel to the assembly of the duchies, of which body he remained vice-president till the end of 1848. Here he signalized himself by his devotion to the cause of Germany; and after the submission of the duchies in 1852, he was deprived by Denmark of his position as curator and also as teacher. By the Prussian government he was made in 1853 librarian in chief and professor of oriental languages at the university of Königsberg. He has published various important works on oriental and scriptural subjects.

OLYMPIA, a plain of Elis in Greece, situated on the right bank of the Alpheus, 300 stadia from the town of Pisa. It was the seat of the Olympic games, and was also famous for its sacred grove, where stood the great temple of Jupiter Olympius, founded by the Eleans in 512 B. C., and containing the colossal gold and ivory statue of the god, the masterpiece of Phidias. The grove (which was surrounded by a wall) and its immediate neighborhood contained numerous other temples and public buildings, collectively, like the plain, called Olympia.

OLYMPIAD. See Chronology, vol. v. p. 203.

OLYMPIAS, daughter of Neoptolemus I., king of Epirus, wife of Philip of Macedon, and mother of Alexander the Great. Her imperious and jealous nature, and the infidelity of Philip, caused much strife between them; and on the marriage of Philip with Cleopatra, the niece of Attalus, in 337 B. C., she fled to the court of her brother Alexander, king of Epirus, whom she incited to make war upon Macedon. On the death of Philip, whose assassination she was said to have approved, if not caused, she returned to Macedonia, and put to death her rival Cleopatra, and her infant daughter. She was constantly at feud with Antipater, the regent during the conquering expeditions of Alexander; and when by the death of the latter in 323 he was placed in absolute control of affairs, Olympias withdrew to Epirus, and tried various schemes for her overthrow. On the death of Antipater in 319, the new regent Polysperchon sent for her to return to Macedonia, and take charge of the young prince Alexander, the son of Roxana. She declined, and determined to remain in Epirus until the war should be terminated. But in 317 she took the field in person, together with Polysperchon, against Eurydice, whom she defeated and put to death. She also put to death Nicanor, brother of Cassander, and 100 of his followers. But she was at last defeated and slain by Cassander at Pydna in the spring of 316.

OLYMPIC GAMES, the most ancient and famous of the 4 great national festivals of the Greeks, celebrated once in every 4 years at Olympia, a plain in the territory of Elis, on the banks of the river Alpheus, and in the immediate vicinity of the temple of Olympian Jove. Their origin is lost in the mythical ages, but, like that of the other Hellenic games, was probably connected with the rites paid to some deity; and from the close association which in the heroic epoch prevailed between the feelings of common worship and the sympathy in common amusement, they gradually expanded into a festival partly religious and partly secular in its character. After having been interrupted or discontinued for a considerable period, the Olympic games were reëstablished about 844 B. C. (so far as any approximation to accuracy in dates can be made), by Iphitus, king of Elis, and Lycurgus the Spartan lawgiver, who, according to Pausanias, were commanded by the Delphic oracle to revive the festival as a remedy for intestine commotions and for pestilence with which Greece was then afflicted. For upward of a century after this, however, the games continued a local festival, frequented chiefly by the neighboring Peloponnesian races; but as they grew in importance, spectators came from the more distant states and from the Greek colonies of Asia, Africa, and Europe, until, in the zenith of its fame, the festival presented an assemblage of the representatives of the Hellenic tribes such as no other occasion could bring together. Except in two or three instances, the management of the games was in the hands of the Eleans, who appointed certain of their number called Hellanodicæ (Ἑλλανοδικαι) to preside as judges. As the time approached for the celebration of the games, a sacred truce was proclaimed, and during the month in which they took place the Elean territory was considered so inviolable that any armed invasion was esteemed an act of sacrilege. At the same time hostilities were suspended throughout Greece. At first the festival was confined to a single day, and consisted of the δρομος or simple match of runners in the stadium, which was about 600 English feet in length. In 776 B. C. the Eleans inscribed the name of their countryman Corœbus as victor in the competition of runners, and for nearly 1,000 years afterward we have regular lists of the victors in the foot races, to which in later times the names of those successful in other games were added. This date was subsequently employed by the Greeks as a chronological era, and the Olympiads, as the periods between two celebrations were called, commencing with the year 776 B. C., from which the first is reckoned, have supplied historical computers with one of the oldest backward records of continuous time. In this respect the games possess an importance beyond their significance in illustrating the social life of the ancient Greeks. In the course of time the festival was varied by additional contests, and subsequent to the 77th Olympiad (472 B. C.) its duration was extended from one to 5 days. In the 14th Olympiad (724) the διαυλος or double stadium for runners was introduced, and in the 15th the δολιχος or long course, in which the stadium was traversed several times. In the 18th Olympiad (708) several kinds of wrestling matches were added, and also the complicated πενταθλον, which included leaping, running, throwing the quoit, throwing the javelin, and wrestling. To gain a victory in the latter contest the competitor was obliged to conquer in each of its 5 parts. In the 23d Olympiad (688) boxing was introduced, and in the 33d (648) the παγκρατιον, which consisted of boxing and wrestling combined, the cestus, or leather thong about the hands and arms, being allowed in the first contest but not in the second. In both games the combatants fought naked. The race with four-horse chariots, for which a special course called the ἱπποδρομος, about 2,400 feet in circuit, was set apart, was introduced in the 25th Olympiad (680), and became one of the most popular and celebrated of all the matches, testing at once the skill of the charioteer and the endurance of the horses, who were obliged to make the circuit 12 times, a distance of over 5 miles. In addition to these there were foot races in which the runners wore heavy armor, several kinds of races on horseback, races between chariots drawn by two horses or by mules, wrestling and running matches between boys, and other athletic contests, some of which were speedily abolished. Unlike the gladiatorial shows of the Romans or the tournaments of the middle ages, the Olympic games included no combats with any kind of weapons—a feature indeed incidental to all the great national festivals of the Greeks. The games were open to persons of all ranks and occupations, the only conditions being that they should prove a pure Hellenic descent and a character free from infamy and immorality. But after the conquest of Greece by the Romans, the latter were allowed to become competitors. In the chariot races the rich were necessarily the sole competitors, and such persons were allowed to employ others as drivers or riders; but in the gymnastic contests rich and poor contended on equal terms, and the victory was as much prized by the former as by the latter. In all cases the combatants were obliged to undergo a preparatory training, and to take a solemn oath to eschew fraud or unfairness in reference to the contests. Any attempt to bribe a competitor to give the victory to his antagonist was punished by a heavy fine. In the earlier celebrations, as in the Homeric games, the prizes seem to have had some intrinsic value; but after the 7th Olympiad, in which Daicles the Messenian received for his victory in the stadium a wreath from the sacred olive tree near Olympia, this simple reward, with the honor of being proclaimed victor, which was an object of ambition with the noblest and wealthiest of the Greeks, was considered a sufficient recompense. The victor thenceforth became a marked man in his state, upon which as well as upon his family he was considered to have conferred everlasting glory; ovations and many substantial honors awaited him on his return home; his praises were sung by the most eminent poets; and his statue was often erected at the expense of his fellow citizens in the Altis, or sacred grove of Jupiter at Olympia. No women were allowed to be present at the celebration of the games under penalty of death, a single exception being made in the case of the priestess of Demeter Chamyne, to whom a seat was assigned opposite to the judges; but women were allowed to enter chariots for the races, and frequently did so. The concourse of men, however, particularly after the expulsion of the Persians from Greece, which by strengthening the Pan-Hellenic feeling, had lent additional dignity to the festival, was very great, and included representatives of all the principal branches of commerce and the arts. Many literary works were here first publicly recited, although such recitations were not contests and formed no part of the festival proper; and painters and sculptors found abundant means to dispose of their productions. Many persons were also present as *θεωροι* or deputies from the various states and colonies, and by the number of their offerings and the splendor of their retinues greatly added to the reputation of the festival. The Olympic games preserved their crowds of visitors and their celebrity for many centuries after the extinction of Greek freedom, but at length were finally abolished, after more than 1,100 years of continuance, by a decree of the Christian emperor Theodosius, A. D. 394. In 1858 M. Zappas, a wealthy Peloponnesian, contributed a fund for their reëstablishment, under the auspices of the queen of Greece.

OLYMPUS, Mount, a lofty group of mountains in Greece, lying partly in Macedonia and partly in Thessaly, of which latter country it forms the N. E. boundary. It terminates on the S. at the mouth of the river Peneus, on the shore of the Thermaic gulf, and is separated by the vale of Tempe from the neighboring heights of Ossa, both mountains forming the E. extremity of the Cambunian range. Its highest peak has an elevation of 9,754 feet. The slopes are in many places richly clothed with forests, but toward the summit, which is broad and covered with snow for the greater part of the year, the mountain is broken into vast, rugged precipices, indented at intervals with deep ravines. Its modern name is Elymbo (Ελυμπος). In Greek mythology Mount Olympus was the residence of Jupiter and the chief celestial deities, and the clouds which veiled its summit were supposed to conceal the entrance to the vault of heaven. In Mysia, Galatia, Lycia, Cyprus, and elsewhere, were mountains called by this name, which is also borne by an eminence bordering on the plain of Olympia in Elis, where were celebrated the Olympic games.

OLYNTHUS (now *Aio Mamas*), an ancient town of Chalcidice in Macedonia, situated at the head of the Toronaic gulf. It was early inhabited by Greeks, was taken by the Persians under Artabazus, one of the generals of Xerxes, was next subject to Athens, and regained its independence when the Spartan general Brasidas extinguished the Athenian power in Chalcidice. From its excellent maritime position, it grew in wealth and importance, until, becoming too powerful, the Spartans captured it in 379 B. C. In 352 the Olynthians formed an alliance with the Athenians, which provoked the hostility of Philip of Macedon, and in 347 the city was betrayed to him, the citizens were sold, and every building was demolished.

OMAR I. (Abu Hafssah Ibn-al-Khattab), the 2d caliph of the oriental (Arabian) dynasty, and 3d cousin of Abdallah, the father of Mohammed, born in 581, assassinated in 644. Originally a bitter enemy of the prophet, he set out for Medina with the intention of murdering him; but on his way, chancing to read the 20th chapter of the Koran, he was converted. Henceforth he became so zealous a supporter of the Moslem faith, that Mohammed said that "if God should wish to send a second messenger into the world, his choice would undoubtedly fall on Omar." So disinterested was he, that when the prophet died in 632, he resigned his claim to the supreme rule in behalf of Abubekr; and when the latter on his deathbed appointed him his successor (634), he unwillingly accepted. "I have no occasion for the place," said he. "But the place has occasion for you," replied the dying caliph. During his reign the Moslem arms were victorious everywhere. One army prosecuted the conquest of Syria, took Damascus in 635, defeated the Greeks in the bloody battle of Termuk, and in 637 compelled Jerusalem to capitulate. Another army under Amru invaded Egypt, reduced Alexandria (at which time the library founded by Ptolemy Philadelphus is said to have been destroyed), and overran Africa as far as the deserts of Tripoli and Barca. In Persia and Armenia the Moslems were also successful; and a Mohammedan historian sums up the conquests of Omar by saying: "He took from the infidels 36,000 cities or castles, destroyed 4,000 temples and churches, and founded or endowed 1,400 mosques." In Nov. 644, while performing his morning devotions in the mosque at Medina, he was stabbed three times by a Persian slave named Firiez, who had applied to him in vain to be relieved of half the tribute he was compelled to pay his master. He lingered 5 days, refusing to name his son as successor, saying: "It is enough that out of my family one has been forced to bear this burden, and account afterward to God for the command and government of the faithful." Omar's only food was barley bread and dates; his only drink, water; and his garment an old coat torn in 12 places. He regularly distributed the contents of his treasury among his soldiers and followers, and supported himself by the work of his own hands, manufacturing and selling leather belts. A large portion of his time was devoted to prayer, and during his life he made several pilgrimages to Mecca. So zealous was he for the exact administration of justice, that, according to the historian Wakedi, the staff of Omar was more dreaded than the sword of his successors. He was the first to assume the title of Emir-el-Mumenim, or commander of the faithful, and some of the most useful Mohammedan institutions date from his reign. In his time the era of the Hegira was established, armies were first kept upon pay, and a sort of police force instituted. Omar has always been an object of reverence among the Moslems of the Soonnee or orthodox sect, and it has been thought that he did more to advance the cause of Mohammed than the prophet himself.

OMAR II. (Abu Hafss), 8th caliph of the Ommyiades, succeeded Solyman in Sept. 717, died in Jan. 720. He was a descendant of Omar I., and endeavored to imitate the example of that monarch. It was the chief effort of his reign to reconcile the houses of Omar and Ali, and for that purpose he revoked the maledictions against the partisans of the latter, which had been read in all the mosques since the time of Moawyiah, and restored them the lands given to Ali by the prophet. But several members of the ruling family, alarmed at this conduct, administered to him a slow poison, of which he died after having reigned 2 years and 5 months. Although exceedingly economical as regarded himself, his liberality had been so excessive, that there was not sufficient money left in the treasury to pay his funeral expenses.

O'MEARA, Barry Edwards, an Irish surgeon, born in 1770, died in London, June 3, 1836. He was educated at Trinity college and at the royal college of surgeons, Dublin, and served several years in Sicily, Egypt, and Calabria, as assistant surgeon to the 62d regiment. He was afterward surgeon in the navy, and was appointed to the Bellerophon in Aug. 1815, when Napoleon came on board that ship as a prisoner. At the request of Napoleon, who was attracted by his knowledge of Italian and his professional skill, O'Meara accompanied the ex-emperor to St. Helena, in the capacity of medical attendant, and acquitted himself to the satisfaction of Sir George Cockburn and his successor Sir Pulteney Malcolm. But a rupture taking place between him and Sir Hudson Lowe in regard to the treatment of Napoleon, he returned to England, where he was well received. Having accused Sir Hudson Lowe before the admiralty of cruel and arbitrary conduct, his name was erased from the list of naval surgeons. He afterward acted with the extreme liberals, and was a partisan of Daniel O'Connell. He published the *Manuscrit de l'île d'Elbe*, by Napoleon; "Letters from the Cape of Good Hope;" "Letters from St. Helena;" "Letters from Count Las Casas," with a preliminary discourse; "Exposition of the Treatment of Napoleon Bonaparte;" a translation of the "Memoirs of Napoleon" by himself, and "A Voice from St. Helena, or Napoleon in Exile."

OMEGA. See Alpha.

OMEN (Lat.), a sign believed to prognosticate a future event, between which and the event foretold there appears no relation of cause and effect, but which is usually received as an intimation from a superior power. Omens have been common among most nations, and are often remembered and mentioned after they have ceased to be credited. Though generally classed among superstitions, they may sometimes be founded on some hidden relation in things, some natural law of sequence the ground of which is unknown. They have been chiefly in vogue in the ruder ages and communities, though under the name of auguries they retained their influence during the whole period of pagan antiquity, and though eminent warriors and other popular leaders in moments of extreme doubt and peril have given notable examples of faith in them. Suetonius mentions that Cæsar, on landing at Hadrumetum in Africa, happened to fall upon his face, which would have been an unlucky omen had he not transformed it into a symbolical act by exclaiming as he touched the earth: *Teneo te, Africa* (I take possession of thee, O Africa). Valerius Maximus relates that Pompey on arriving at Paphos after the battle of Pharsalia lost the remnant of his hopes when he discovered the name of the palace concerning which he inquired (Κακοβασιλεια, evil palace). It is stated by Winsheim that Melanchthon went forth from the assembly at Torgau in anxious doubt concerning the future of the reformation, but found in the antechamber three women, one of whom was holding a new-born child, another was supporting and instructing a boy, and the third was giving food to a full-grown man; and that he immediately returned into the hall, and so encouraged the assembly by reporting the favorable symbolical omen, that bolder and more decisive resolutions were at once carried. Sir Thomas Browne mentions the old English and French superstition, which is also found in the fathers of the church, and to which Weston assigns an oriental origin, that a child's caul was not only a happy omen to the child itself, but would also guard from danger whoever might obtain it by purchase. During the present century such cauls have been advertised for sale at high prices in the London "Times." Sneezing was deemed ominous in the time of Homer, and Eustathius states that it was lucky or unlucky according as it was directed to the right or the left. Aristotle discusses the problem why sneezing from noon to midnight is good, and from midnight to noon bad. At noon it was propitious. Among the ancient Persians sneezing was esteemed fortunate, a sign of contest between the fiery soul and the earthly body, and of the victory of the former. When the emperor of Monomotapa sneezes, says Codignas, it is proclaimed through the whole land as a signal for general joy. In every age dreams have by some been regarded as divine revelations. The following are examples of omens from them: to dream yourself or friend to be buried foretells a serious fit of illness; to dream of death denotes happiness and long life; to dream of flying signifies presumption and vain ambition; to dream of gold promises success, and of silver misfortune; to dream of a hen and chickens proves you will be married to a widow or widower with many children; to dream of serpents is a sign of impending perils; to dream of a fall predicts loss of character. It is an old English rustic custom for girls to fast on St. Agnes' day, and to put a Bible under their pillows with a sixpence clapped in the book of Ruth, in order to dream of the men destined to be their husbands. In parts of Scotland and in some other localities, it betokens the utmost good fortune during the month to see the moon for the first time after her change on the right hand or directly in front; to turn the head back to see it, especially over the left shoulder, foreshadows the worst fortune. It is also held unlucky to look at the new moon for the first time through a window. The belief in the fatal influence of the waning moon on all projects begun under it was, according to Dr. Jamieson, general in Scotland. Bishop Hall mentions the falling of salt toward persons at table and the spilling of wine on their clothes as evil omens, which were also believed by the Germans to forebode calamity and feuds. Putting the shoes on awry or on the wrong feet has often been thought the forerunner of some unlucky accident. Augustus put his sandals on wrongly on the very morning he narrowly escaped death by a mutiny. Breaking a looking glass betokens the death of the best friend of the person to whom it belonged. Constant relates that during one of his Italian campaigns Napoleon broke a mirror over Josephine's portrait, and that so strong was the impression made by the event on his mind that he immediately despatched a courier to assure himself of her safety. Sir Thomas Browne discusses the proverb that our cheeks burn or ears tingle when others are talking of us. The left cheek or ear indicated that they were talking ill; the right, well. The itching of the nose implied that a stranger was coming. Burton in his "Anatomy of Melancholy" states that "to bleed three drops at the nose is an ill omen." The spots on the finger nails were all ominous; the itching of the palm of the right hand promised a receipt of money; the doubling of the thumb within the hand was believed to have efficacy in avoiding approaching danger, and therefore the thumbs of dead persons were so folded. The way in which fires, candles, or lamps burned suggested divers omens. The superstition still prevails in many places that the howling of a dog by night presages a death in the neighborhood. Duncan Campbell expresses his faith in this omen, and adds: "Odd and unaccountable as it may seem, those animals scent death, even before it seizes a person." The screeching of the owl and the croaking of the raven have both in ancient and modern times been regarded as omens of some dire calamity. Divers presages concerning the weather have been derived from the habits of birds, bees, wasps, gnats, &c. Pennant states that many of the great families of Scotland received monitions of future events, especially of death, by spectres, wraiths, and shrieks. Fishermen and sailors discover omens in echoes, flashes, shadows, and other visible appearances. To throw a cat overboard, or lose a bucket, is believed to be unlucky. Whistling is supposed to stir up the wind. Stumbling has been the subject of numerous superstitions. Caius Gracchus stumbled at his threshold on the morning of his death. To stumble on going out, says Bishop Hall, was mischievous; to stumble up stairs, says Grose, was lucky.

OMER, a measure. See Homer.

OMER PASHA (Michel Lattas), a Turkish general of Croatian origin, born in Plaski, a village of Croatia, in 1806. His father held a position of importance in the Austrian civil service. The son was educated at the military school in his native place, and at Thurm near Carlstadt, distinguishing himself by his knowledge of mathematics and the beauty of his handwriting, to which latter circumstance he owes much of his success. He was made a cadet in the frontier regiment of Ogulin, and subsequently appointed assistant to a surveyor of roads and bridges; but becoming disgusted with keeping accounts and mending highways, he left the Austrian service, resided for some time at Zara in Dalmatia, and then passed over into Bosnia. Here he was first employed as a bookkeeper by a Turkish merchant, and afterward became tutor of the children of Hussein Pasha, the exterminator of the Janizaries, who in 18[illegible] sent him to Constantinople. He had previously adopted the Mohammedan religion and assumed the name of Omer. Here he became professor of penmanship in the new military school, was appointed an officer in the army, and became writing master to Abdul Medjid, the present sultan. He took part in the reorganization of the Turkish forces, and spent two years in Bulgaria and in the Danubian principalities in topographical studies. In 1839 he was made colonel, served in the campaign against Ibrahim Pasha with distinction, and on his return was promoted to the rank of brigadier-general. He also bore a principal part in the pacification of Albania, and in quelling the revolt of Koordistan. In 1848 he was appointed commander of the Turkish troops in Moldo-Wallachia, and when in 1849–'50 the Mohammedan inhabitants of Bosnia, indignant at the reforms of the sultan, determined not to receive the *Tanzimat*, Omer hastened into that country, and by the rapidity of his operations completely crushed out the insurrection. In the following year he pacified the Herzegovina. In 1852 he was sent against the Montenegrins, and was gradually reducing them when he was recalled in consequence of Austrian diplomatic intervention. In June of the following year the Russian army invaded the Danubian principalities, threatening the passage of the Balkan and the integrity of the Turkish empire. Omer was appointed generalissimo, and immediately began active operations on the line of the Danube, although refusing to fight a pitched battle. Early in November the Russians attacked his troops at Oltenitza, but, after a prolonged engagement, were driven back with great loss. He continued the war in 1854, the vicinity of Kalafat, opposite Widin, being its principal seat; and about the middle of May the Turks were besieged in Silistria by an army of 60,000 men. The siege lasted 40 days, and was finally given up with a loss to the enemy of 10,000. The Russians hereupon repassed the Pruth, and Omer entered Bucharest in August. Early in 1855, acting in conjunction with the French and English commanders, he carried over 35,000 men of his Danubian army to Eupatoria, and began the fortification of that place, where he was attacked on Feb. 17 by a Russian force estimated at 40,000. Although ill provided against an assault, he repulsed the enemy with great loss. Subsequently Omer joined with his forces the allied army encamped near Sebastopol, but took no prominent part in the siege of that place. In the spring he marched his troops into Asia, with the design of relieving Kars and opposing the Russian power in that quarter. Kars was taken, however, before he had gone further than Kutais, and in consequence he retreated to Redout Kale. He was afterward appointed governor-general of Bagdad, in which capacity he delivered that province from the invasion of Arab and Koord tribes. He was accused, however, of fraudulent practices in his administration, and of having passed sentences of death upon several persons without the sanction of the sultan. Riza Pasha, who had been instrumental in the overthrow of Ali Pasha's administration, was also the principal enemy of Omer Pasha; and it was believed to have been chiefly at his instigation that he was found guilty of the charges alleged against him and banished to Kaarpoot in 1859. About May 1, 1860, he was recalled from exile.—Omer Pasha is European in his habits and conversation, and speaks several foreign languages. With the soldiers he is popular on account of his affability. Decorations have been conferred upon him by the English, French, and Russian governments. In 1850 he married a sister of the Transylvanian general Simunich, who had been a governess in a family of Bucharest. The lady subsequently left him, and arrived in New York in 1860, endeavoring to support herself as a music teacher.

OMMYĪADES, the second dynastic line of oriental caliphs, begun with the reign of Moawyīah, the son of Abu Sofian, in the year 41 of the Hegira (A. D. 661), and continued until A. H. 132 (A. D. 750). They derived their name from Ommyīah, an ancestor of Moawyīah. Moawyīah had during the lifetime of Ali, the 4th caliph of the Arabian dynasty, succeeded in making himself master of Syria and Egypt, and after the assassination of Ali gained possession of the whole empire, through the abdication of his successor Hassan. Hitherto the office of caliph had been elective; but it now became hereditary in the family of this monarch, and so continued until the defeat and death of Merwan II., the 14th sovereign of the line (750). During the sway of this dynasty, Kharesm, Turkestan, Spain, and Georgia were conquered, and ineffectual efforts were also made to reduce Constantinople. But the progress of the Moslem arms was in a great measure retarded by the constant civil dissensions which prevailed, and in Europe their conquests were effectually stayed by the defeat they received from Charles Martel on the plains of Poitiers (732). After the contest between Merwan II. and Abul Abbas, the head of the Abbassides, had ended in the defeat of the former, Abdallah, an uncle of Abul Abbas, called a meeting of the Ommyīades, and treacherously massacred them all but two. One of these fled to a corner of Arabia, where his descendants ruled as late as the 16th century; and the other escaped to Mauritania, whence he was called to Spain, and, after defeating the generals of the caliph in two pitched battles, founded the independent caliphate of Cordova as Abderrahman I.

OMNIBUS. See Coach.

OMOA, a port of Honduras, Central America, situated on the bay of Honduras, in lat. 15° 47′ N., long. 88° 3′ W.; pop. 2,000. The harbor is small but safe, and defended by a large fort built by the Spaniards, called El Castillo de San Fernando. The town is about a quarter of a mile from the shore, on a low, level reach of ground, dominated by the mountains of Omoa. It derives its principal importance from the commerce of the departments of Santa Barbara, Comayagua, and Gracias, which passes through it. Its principal exports are bullion, hides, tobacco, sarsaparilla, and mahogany. Formerly Omoa was the port of entry for Guatemala. Its business is chiefly in the hands of foreign residents, English, Dutch, Spanish, and American. The climate is unhealthy.

OMPHALE, daughter of the Lydian king Jardanus, and wife of Tmolus, after whose death she assumed the administration of the government. Mercury sold Hercules to her for a slave, by whom she had several children. Hercules, to please her, assumed female garments and spun among the female slaves, while she wore the lion's skin and wielded the club.

OMRI, king of Israel. See HEBREWS, vol. ix. p. 83.

ON. See HELIOPOLIS.

ONCKEN, JOHANN GERHARD, a German clergyman and missionary, born at Varel, Oldenburg, about 1800. In early life he was a domestic servant. Some time after reaching manhood he visited England, where he married, and subsequently returning to Germany opened a book shop at Hamburg, joined the English Independent church, and became the agent of the Lower Saxony tract society and the Edinburgh Bible society. In April, 1834, while the Rev. Dr. Sears (now president of Brown university) was in Germany, Mr. Oncken and 6 others requested him to baptize and organize them as a Baptist church, of which Mr. Oncken was subsequently ordained pastor. In 1835 the American Baptist general convention appointed Mr. Oncken their missionary. He visited almost every portion of Germany and Denmark, preaching, distributing tracts and Bibles, and organizing churches. In Hamburg he was several times imprisoned for preaching and baptizing; but after the benevolence of his family and congregation to the sufferers by the great fire of 1842, the Hamburg senate passed decrees commending their noble conduct, and granting them the privilege of unrestricted worship. From that time Mr. Oncken has been actively engaged in the promotion of his missionary work, publishing editions of the Scriptures for gratuitous distribution, writing and publishing religious tracts and books, visiting the numerous churches he has established in Denmark, Switzerland, Prussia, the smaller German states, and Austria, and editing with the assistance of his daughter a religious journal in English, and another in German. He visited the United States in 1852 to obtain means for the erection of chapels. The report of the American missionary union for 1860 gives the following results of his 25 years' labor in the missionary work. The churches founded have been constituted either directly by him, or by those converted under his ministry, and all the pastors now in the field, as well as all who have labored there during 25 years, were directly or indirectly brought into the ministry through his efforts. There were in 1859 in the German mission 65 churches and 756 preaching stations and out stations, 7,908 members of the churches, and 120 ministers and Bible readers; 1,163 members had been added to these churches the previous year. There are also 65 Sunday schools, with 1,547 children in attendance, and during the year 14,[illegible] Bibles and Testaments and 458,000 tracts were distributed.

O'NEALL, JOHN BELTON, LL.D., chief justice of South Carolina, born on Bush river, S. C., April 10, 1793. He was graduated at the South Carolina college in 1812, and after teaching in an academy in Newberry, began in 1813 the study of law. He was for a short time called into active military service during the war with Great Britain. Admitted to the bar in 1814, he soon gained a large practice. In 1816, '22, '24, and '26 he was a member of the state legislature, and was speaker of the house during the last two terms. In 1828 he was elected one of the associate judges of the state, and in 1830 became judge of the court of appeals. A decision made in this court, while the nullification doctrine was most vehemently urged in South Carolina, giving offence to the dominant party, it was abolished. In 1847 he became president of the Greenville and Columbia railroad, an office of great difficulty and responsibility, which he held till 1853. In 1850 he was made president of the court of law appeals and of the court of errors, and was subsequently raised by the legislature to be chief justice of the state. As early as 1832 he states that he abandoned the use of spirituous liquors and tobacco "in order to save a friend." In 1841 he became president of the state temperance society, and in 1852 was installed as the head of the sons of temperance of North America. He has furnished many contributions to southern periodicals, among which are reminiscences of the revolution for the "Southern Literary Register." Several of his public addresses have been printed. He has published a "Digest of the Negro Law of South Carolina" (1848); "Annals of Newberry" (1858); and "Biographical Sketches of the Bench and Bar of South Carolina" (2 vols., Charleston, 1859), forming a complete history of the judiciary of the state.

ONEGA, a lake of European Russia, in the government of Olonetz, between lat. 61° and 62° 50′ N. and long. 33° 40′ and 36° E., extreme length 160 m., greatest breadth 50 m.; area, 4,000 sq. m. Its S. end lies about 120 m. E. of the middle of Lake Ladoga, next to which it is the largest body of fresh water in Europe. The N. part is very irregular in shape, several long peninsulas separating the waters into various prong-like projections. The surface is dotted with islands, the shores are generally rocky, and the water is clear and abounds in fish. Navigation is impeded by shoals and sand banks. At its S. W. extremity it is connected with Lake Ladoga by the navigable river Svir; and the Murinskoi canal unites its affluent the Vitegra with the Kayla, a tributary of Lake Bielo, the outlet of which flows into the Volga. The principal other streams falling into Lake Onega are the Migra, Stzia, and Vodla.—Onega is also the name of a bay at the S. extremity of the White sea, of a river flowing into the bay, and of a town (pop. 2,000) at the mouth of the river.

ONEIDA, a central co. of N. Y., drained by the Mohawk and Black rivers and their tributaries; area, 1,127 sq. m.; pop. in 1855, 107,749. Through the centre of the county a broad valley extends from E. to W., and toward the N. and S. the surface is broken and hilly. The soil is generally rich and very fertile. Oneida lake lies on the W. border. The productions in 1855 were 732,294 bushels of Indian corn, 975,800 of oats, 624,648 of potatoes, 62,322 of wheat, 54,767 of buckwheat, 24,121 of rye, 124,933 tons of hay, 187,327 lbs. of wool, 616,054 of hops, 3,912,176 of butter, and 3,311,114 of cheese. There were 238 saw mills, 42 grist mills, 12 cotton factories, 13 woollen factories, 21 furnaces, 33 tanneries, 19 newspaper offices, 201 churches, and 38,615 pupils attending public schools. The county is traversed by the Erie and Chenango canals, and partly by the Black river and the Oneida lake canals; and the New York central railroad, which intersects the county, connects at Utica with the Black river railroad, and at Rome with the Watertown railroad. Capitals, Rome and Utica.

ONEIDA, a lake in the central part of N. Y., lying between Oswego, Oneida, Madison, and Onondaga counties, at an elevation of 369 feet above tide water, 30 m. long and 6 to 7 m. wide. It forms a link in the chain of internal navigable waters of the state, and its outlet, Oneida river, after a course of 16 m., falls into the Oswego river. Its waters abound in fish.

ONGARO, FRANCESCO DALL', an Italian poet and priest, of Hungarian descent, born in Friuli in the early part of the 19th century. At the age of 15 he removed with his mother to Venice, where he found admission into the patriarch's seminary. In 1828–'32 he published poems on Silvio Pellico, which found admirers. Ordination being refused to him at Venice, he removed to Padua, where he attended the university for the purpose of taking orders. In 1833 and 1834 he officiated as professor at Este. Soon, however, he gave umbrage to the ecclesiastical authorities by his occasional sermons, and after his removal to Trieste he ceased to preach. For several years he resided at Trieste, devoted to writing popular songs and class books for Italian pupils in the public schools of that city. In 1848 he returned to Venice, where Manin employed him in missions to Ravenna, and afterward he went with Garibaldi and Mamelli to Rome. Under the short-lived republican government he was a member of the chamber of representatives, and editor of the *Monitore di Roma*. During the defence of the city he was one of Garibaldi's aides-de-camp. After the capture of the city by the French he remained in exile until April, 1859, when he returned to Tuscany. During several years of his exile he was engaged in literary pursuits in Switzerland. Subsequently he delivered a course of lectures on Dante in Brussels, and resided for some time in Paris, where he prepared for Ristori an Italian version of Racine's *Phèdre*, and of Milman's "Fazio." His popularity is chiefly due to his stirring and picturesque national songs, as his "Phantom Volunteers" and "Garibaldi," published in Milan during the war of 1859. Some of his most celebrated songs are contained in his *Voci del popolo* (Milan, 1860).

ONION (*allium cepa*, Linn.), a well known vegetable belonging to the natural order of *liliaceæ*, but more particularly to the sub-order *asphodeleæ*, herbaceous plants with bulbous, fasciculate-fibrous, or tuberous roots, tubular or 6-parted flowers, capsular or berry-like fruit, anatropous or amphitropous globose or angular seeds, covered by a hard, black, fragile integument. The onion has been cultivated from a very remote period, and its native country is uncertain. Beside the onion, the genus *allium* contains many distinct species, such as the shallot, the chive, the garlic, and the leek, which enter into the food of man. They all have bulbous roots, umbellate flowers enclosed in a spathe, sepals and petals spreading, having the stamens inserted in the base, capsular fruit, and angular seeds. The common onion has a ventricose stem, which is leafy at base, terete leaves, a reflexed spathe, flowers in a globose umbel, lobes of the flower obtuse, hooded, not half so long as the stamens, and a flat bulb. The varieties of the common onion are not so numerous as might have been anticipated, considering that it is raised from seed. They vary however in very sensible qualities, such as the hardness of the particular sort, in pungency of taste, in color of the skin of the bulbs, as well as in shape. The most delicate kinds are the Portugal and Tripoli, which are also of good size. The common onion is raised extensively in different sections of New England both for marketing and for exportation. It is found to succeed well as a crop on a rich, moist, sandy soil, using old manures mixed with ashes and soot, or meadow muck mixed with horse, cow, and hog manure. The seed is sown in drill rows about a foot asunder, about the last of May, if the ground be in a proper condition to receive it. As the plants appear they should be kept clear of weeds, and will need 4 or 5 hoeings before the tops arrive at their full growth. The onion requires a full exposure to the sun's rays and all the warmth it can get, so that weeds if suffered to grow would materially impede the progress of the crop by their shading it. Some recommend that the earth be firmly trodden down between the rows, so as to compel the bulbs to become more exposed to the air and light as they increase in size. If the growing plants incline to become thick-necked, or produce scallions as they are called, the more need is there to harden the ground and expose the bulbs. At the end of the season the leaves dry away, when the bulbs should be pulled up and suffered to lie on the ground, the fibres having by this time decayed and being no longer of any service to their nourishment. By this process, if the weather should prove to be fine and good, the onions ripen and harden. To obtain seed, the bulbs should be planted out early in the spring in beds about 9 inches apart. The tops will appear in a few weeks, and send up several flower stalks from each bulb. They should be kept clear of weeds, and the stalks secured to stakes or protected by some enclosing framework to prevent their being broken by the wind. When the onion is required for early marketing, the seed is sown as a later crop, and the small bulbs protected through the winter, or reset as early as possible. The sorts in most esteem are the Wethersfield red or early red, globular in shape, the mildest and best for the table, and the yellow onion of New York, erroneously called the silverskin. The sorts raised for shipping are the Danvers, a thick-skinned and tough coarse kind, very globular in shape; and the small red, a strong and pungent kind raised for the West India market. For several years the onion crop has been seriously affected by the ravages of the larvæ of a fly, for which no remedy has yet been discovered. A similar insect has been long known in England, and charcoal dust applied to the young growing bulb has there been found of value. This and numerous other applications have in this country hitherto failed.

ONLAF. See AULAF.

ONONDAGA, a central co. of N. Y., bounded N. E. by Oneida lake, and watered by the Oswego, Seneca, and Oneida rivers, and various creeks; area, 720 sq. m.; pop. in 1855, 86,575. Its surface is hilly and broken to the S. and level to the N., and the soil is remarkably strong and fertile. It contains a number of lakes, of which the principal are Onondaga, Cross, Skaneateles, and Otisco. The Onondaga salt springs are in the valley of Onondaga lake, and yield large quantities of salt, amounting in 1858 to 7,033,219 bushels. The agricultural productions in 1855 were 1,015,227 bushels of oats, 182,206 of wheat, 907,453 of Indian corn, 371,785 of barley, 380,141 of potatoes, 63,246 tons of hay, 554,987 lbs. of tobacco, 318,446 of wool, 2,294,287 of butter, and 360,644 of cheese. There were 36 grist mills, 81 saw mills, 6 paper mills, 6 woollen factories, 15 newspapers, 142 churches, and 31,428 pupils attending public schools. The Erie canal traverses the county, connecting at Syracuse with the Oswego canal, which extends to Lake Erie. The New York central railroad passes through the capital, Syracuse, from which various branches radiate.

ONSLOW, GEORGES, a French musical composer, born in Clermont, Puy de Dôme, July 27, 1784, died there, Oct. 3, 1853. His father, who had emigrated from England to America, had returned to Europe during the war of independence, and married a French lady. The son was educated in London, enjoyed the instruction of several celebrated pianists, and subsequently studied under Reicha in Paris. Some of his quartets and quintets for stringed instruments have become classical. He produced 3 operas, *L'alcade de la Vega* (1824), *Le colporteur* (1827), and *Le duc de Guise* (1837), which are now forgotten. In 1842 he succeeded Cherubini as a member of the academy of fine arts.

ONTARIO, a W. co. of N. Y., drained by the Honeoye outlet, a tributary of the Genesee, Canandaigua outlet, and Mud creek, tributaries of the Clyde; area, 606 sq. m.; pop. in 1855, 42,674. Its surface is hilly and broken toward the S., undulating toward the N., and the soil is generally very fertile. A number of beautiful lakes lie in the county, among which are Canandaigua, Honeoye, Canadice, and Hemlock. Seneca lake lies partly on the E. border. The productions in 1855 were 556,147 bushels of wheat, 617,485 of Indian corn, 525,937 of oats, 320,373 of barley, 188,900 of potatoes, 42,448 tons of hay, 609,075 lbs. of wool, 1,223,097 of butter, and 205,921 of cheese. There were 40 grist mills, 54 saw mills, 4 woollen factories, 5 tanneries, 7 newspapers, 84 churches, and 15,435 pupils attending public schools. The Auburn and Canandaigua branch of the New York central railroad traverses the county, and the Elmira and Niagara Falls railroads connect with it at the capital, Canandaigua.

ONTARIO, a central co. of Canada West, bordering on Lake Ontario, and drained by a number of streams, some of which fall into Lake Ontario on the S., and others into Lake Simcoe, which lies on the N. W. border; area, 851 sq. m.; pop. in 1851, 30,576. The grand trunk railway traverses the S. border; and the Port Hope and Beaverton branch, to Lake Simcoe, crosses the N. part. Capital, Whitby.

ONTARIO, LAKE, the lowest and smallest of the chain of five great lakes of the northern United States and Canada. The name is Indian, meaning beautiful. The lake extends E. and W. about 180 m., having a mean breadth of 35 m., and a depth supposed to average about 500 feet. The elevation of its surface above tide being 234 feet, its bottom is about as far below the level of the ocean as its surface is above it. The area of the lake is computed at 6,300 sq. m., 3,600 sq. m. less than that of Lake Erie, the next larger lake. The boundary line between the United States and Canada runs through the central portion of Lake Ontario, from the mouth of the Niagara river to the outlet in the extreme N. E. corner. This is the St. Lawrence river, which, commencing at this point, pursues a course of nearly 800 m. to the gulf of St. Lawrence. From the head of the river the coast of Lake Ontario on its E. and S. sides as far as Niagara river belongs to the state of New York; thence 50 m. further W. along the southern coast, around by the N. side to the St. Lawrence river, the lake is bounded by Canada West. By reason of its great depth Lake Ontario is much less disturbed by storms than Lake Erie, and its navigation is also much less obstructed by ice. In the severest winters the boats continue their trips across, and are rarely interrupted by ice. When once chilled, the water slowly recovers a warmer temperature; and even in the middle of May for two successive years, 1837 and 1838, it has been found that the temperature of the water a little below the surface in the central portion of the lake was only from 36° to 38°, while near the American shore it was from 52° to 68°, and at the same times at Coburg on the Canadian side from 48° to 51°. Prof. C. Dewey, by whom these observations are recorded in the "American Journal of Science," supposed that the accumulation of ice in Lake Erie, which frequently does not disappear till some time in May, serves to retain the low temperature of the water, particularly along the course of the main current through the central part of Lake Ontario. The effect of this is to retard the approach of spring; but opposite causes operate in the autumn to check the advance of winter. The same observer has recorded the measures of the varying level of the lake from the year 1845 to 1859, made at the mouth of the Genesee by order of the government. From these it appears that there is no periodical rise and fall, and the variations are dependent on very regular and adequate causes of supply and drain. The range of rise and fall is 54 inches, the maximum elevation during the years of the observation being in February and the minimum in August. The effect of long continued rains or of long droughts in certain years is observed in the occurrence of the highest or lowest water out of the usual seasons.—The country around Lake Ontario is in general fertile and well populated by agricultural, manufacturing, and commercial communities. On the N. side the surface rises gradually from the lake shore and spreads out in broad plains. From the St. Lawrence river two thirds of the way to the W. extremity of the lake these are underlaid by the lower silurian limestones, from which the soil derives its fertility. These rocks near Toronto pass beneath the group of the Hudson river slates, and these then occupy the surface nearly to Burlington. The red shales and sandstones of the Medina group succeed, and a narrow belt of this formation borders the lake on its W. and S. sides. At Oswego the lower formations begin to reappear, and their outcrops are successively passed over along the E. extremity of the lake. The formations which underlie the lake and form its bottom over the N. half of the lake, at least, are no doubt these lower limestones sloping southwardly from the N. shore. A marked feature in the topography of the S. shore is the "Lake ridge," a narrow elevation ranging from Sodus in Wayne co. to the Niagara river, nearly parallel with the edge of the lake, and at a distance of from 3 to 8 m. from it. Its elevation is in places nearly 200 feet above the lake, and generally exceeds 160 feet. The surface on each side slopes away gradually, so that the line of the ridge is not everywhere distinctly defined. In other places it is plainly marked, having a base from 4 to 8 rods across, and a width at the summit of about 2 rods. Sometimes it is divided into 3 or 4 parallel ridges, which extend a few rods and then unite in one. Being composed of sand and gravel, it makes one of the finest natural roads in the world, and the principal highway along this side of the lake has been upon its summit. There can be little doubt but that this line of elevation was an ancient shore line, and that within a recent geological period it has been formed by the waters of the lake.—Beside its main feeder, the Niagara river, the principal streams which flow into Lake Ontario are the Genesee, Oswego, and Black rivers. The Oswego is the outlet of all the lakes in the western part of New York, amounting to 15 in number. On the N. side of Lake Ontario a range of hills extending parallel with the lake and a few miles back from it throws the drainage generally in other directions. The Trent river alone finds a passage through these hills and flows with a number of smaller streams into the bay of Quinté, a long inlet extending about 70 m. between the peninsula of Prince Edward near the foot of the lake and the mainland. The largest island in the lake, called Amherst island, is at the mouth of this inlet; it is 10 m. long and 6 broad. Many other smaller islands are met with at this lower extremity of the lake; but excepting in this part the coast is very regular and unbroken. The principal towns in New York on the lake, or near the mouths of the streams which flow into it, are Lewiston on the Niagara river, Rochester on the Genesee, Oswego at the mouth of the Oswego river, and Sackett's Harbor near the foot of the lake. In Canada, Kingston at the foot of the lake, Toronto 35 m. from its head, and Hamilton at the extreme head, are the largest towns on the lake. Its navigation is connected with that of Lake Erie by the Welland canal of Canada, 28 m. long, which has 27 locks of 346 feet lift, and is navigable by vessels of 500 tons.

ONTOLOGY. See PHILOSOPHY.

ONTONAGON, the extreme N. W. co. of Mich., bounded N. W. by Lake Superior, and S. W. by Wisconsin, from which it is separated in part by the Montreal river, and drained by the Ontonagon, Fire Steel, Iron, Presque Isle, and Black rivers; area estimated at 2,300 sq. m.; pop. in 1860, 4,570. The surface is hilly, and an elevated range called the Porcupine mountains traverses the northern portion. It contains large quantities of copper and iron ore. Capital, Ontonagon.

ONYX, a variety of agate in which two or more stripes of strongly contrasted colors alternate with each other; often one opaque and one transparent layer. (See AGATE.)—In surgery, an abscess of the cornea of the eye, so called from its resemblance to the stone.

OOLITE (Gr. ᾠόν, an egg, and λίθος, a stone), a name given to limestone composed of rounded particles, like the roe or eggs of a fish. Each one of the grains has usually a small fragment of sand as a nucleus around which concentric layers of calcareous matter have accumulated. Ferruginous oolites are also found, as in the Clinton group in the United States, the investing material being in this case red oxide of iron. (For an account of the iron ores, see IRON.)—The name oolite is also applied to a group of strata of the jurassic period, largely developed in England, in which limestone of this character occurs. (See GEOLOGY.)

OORFA. See EDESSA.

OORT, ADAM VAN, a Flemish painter, born in Antwerp in 1557, died there in 1641. He was instructed by his father, a painter of history, and in early life became distinguished in the same department. Subsequently he opened a school in Antwerp, where Rubens, Jordaens, and other eminent painters were instructed. Intemperate and depraved habits ruined him, and he was finally deserted by all his pupils except Jordaens, who married his daughter. Rubens used to say of him, that if he had studied at Rome he would have surpassed all the Flemish artists of his time.

OPAL, a mineral species presenting many varieties, and known by a number of names, as hyalite, hydrophane, cacholong, girasol or fire opal, precious opal, wood or semi-opal, common opal, &c. The species is recognized by its peculiar vitreous or sometimes resinous or pearly lustre, and by its composition, which is silica combined with 7½ to 11 parts in 100 of water. Its hardness is 5.5 to 6.5; specific gravity 1.9 to 2.3. It is sometimes white, and is also found of various shades of red, yellow, brown, gray, and others. In what is called the precious opal a play of rich colors is exhibited. In fire opal the color is bright hyacinth red with yellow reflections. The precious opal was known to the ancients, and ranked among the most valuable of gems. Pliny describes it under the name of *opalus*, and in the Orphic hymns it is spoken of as the ὀπάλλιος, and again as παιδέρως in allusion to the delicacy of its complexion, like that of a child, παῖς. Fine specimens of precious opal are still valued as gems, some of the most famous of which will be noted below. Opal in some of its varieties is not a rare mineral. It occurs in veins in porphyry, sometimes associated with galena and blende, and again in vesicular cavities in amygdaloidal rocks, sometimes in limestone and clay slate, and even as the material replacing the organic matter of fossils. It is obtained in various parts of the world. Mines have been worked for it in Hungary, in the county of Sáros, for several centuries, and the precious opal extracted and taken away by Grecian and Turkish merchants has, it is stated, found its way by the Indies to Holland under the name of oriental opal. The same variety is also brought from Honduras and Nicaragua. The fire opal is found in the Faröe islands, Guatemala, Zimapan in Mexico, Washington co., Ga., and various other places. Humboldt brought from Mexico the first specimens of it seen in Europe. It is too rare, however, to be employed like the precious opal in jewelry. The latter is used for rings, necklaces, and other ornaments, usually in oval or lens form, and to best advantage in a black setting. The edges of the stone on account of its softness are easily injured, and it must therefore be used with care. Very fine jewels are sometimes protected by a thin plate of quartz crystal. Changeable red and green colors are the most highly valued. Some opals are rated at very high prices, as one at £4,000, from Hungary in the great exhibition of 1851, which weighed 526½ carats. Two belonging to the crown jewels of France cost 75,000 francs. In the imperial cabinet of Vienna is one weighing 17 oz., of splendid colors, but with numerous fissures. Specimens imported into the United States are valued by dealers at $4 to $10 per carat. Some of the finest are from Gracias á Dios, Honduras. The variety called hydrophane is remarkable for becoming transparent when immersed in water. Wood opal is so named from its peculiar ligneous structure, and occurring in the form of trees in trappean rocks. Its localities are Hungary, France, Iceland, Greenland, Maryland, and Pennsylvania. In Vienna it is manufactured into snuff boxes, and when it is in layers with chalcedony it is cut into cameos.

OPATES, or OPATAS, a tribe of Indians in the Mexican state of Sonora. They have long been Christianized, are a quiet and industrious people, and are devoted to agriculture. They are found chiefly in the central parts of the state, where they are domiciled in villages inhabited almost exclusively by themselves. This mode of life has given them a fairer complexion than that of the Indians who dwell entirely in the open air. They are the only Indians who have successfully contended with the savage Apaches. On many occasions they have been called out by the government.

OPELOUSAS, the capital of St. Landry parish, La., on Vermilion river, 50 m. W. from Baton Rouge, and 217 W. N. W. from New Orleans; pop. about 2,000. It is situated in the midst of a fertile and picturesque country, and is on the projected line of the New Orleans, Opelousas, and great western railroad. It contained in 1850 a court house, U. S. land office, 2 newspaper offices, 2 banks, and 2 churches (Presbyterian and Roman Catholic), and is the seat of Franklin college, founded in [illegible].

OPERA, a species of drama in which airs, recitatives, choruses, &c., with orchestral accompaniments and the ordinary stage accessories, supply the place of spoken words. This is the true opera as found on the Italian stage at the present day, and as performed at the *académie impériale* in Paris; but the term is applied to a class of compositions familiar to the theatres of Germany, France, and England, in which the words are partly spoken, partly sung. Opinions, formerly much divided as to its origin, seem now to incline to the belief that the idea of the opera is derived from the Greek drama; and it is said to have become a recognized form of dramatic composition as early as the latter half of the 15th century. There is great doubt, however, whether any work entitled to be called an opera was publicly produced previous to the year 1600, when Ottavio Rinuccini's drama of *Euridice*, set to music by Giacomo Peri, was performed in honor of the nuptials of Henry IV. of France and Maria de' Medici—a conclusion strengthened by Rinuccini's statement in his dedication of the work to the queen, that he had written it "merely to make trial of vocal music in that form." The opera soon became a popular species of musical composition in Italy, and about 1675 was established in the chief cities of the peninsula. In 1646 it was introduced into France by Cardinal Mazarin, but was soon superseded by the national French opera founded by Louis XIV., and which received its impetus from the genius of Lully. This was the parent of the grand French opera of the present day, which is sung throughout. In 1710 *Almahide*, an opera written in Italian and performed by foreign singers, was produced in London; and, notwithstanding the ridicule of wits and men of letters, the popular repugnance to this species of music, and the subsequent competition of the mixed English opera, the Italian opera maintained its ground on the British stage, where it is now permanently established. In Germany it long antedated the establishment of a national opera, in competition with which it still flourishes; and in Russia, the Spanish peninsula, and other parts of Europe, it is the chief form of the musical drama extant. The Italians divide operas into 4 classes, the sacred, the serious, the semi-serious, and the buffo or comic; the French recognize but two divisions, the *grand opéra* and the *opéra comique*, the latter of which is partly spoken; while the Germans subdivide them into grand opera, serious, tragic, heroic, romantic, comic, and other classes. No other nations with the exception of the English can be said to have an established national opera. (See Music.)

OPHICLEIDE (Gr. *οφις*, a serpent, and *κλεις*, a key), a large brass wind instrument of the trumpet species, having a loud tone and a deep pitch, and much used in military bands. It forms the base to the trumpets, and has a compass of 3 octaves, from double Bb to Ab above the line in the base clef.

OPHIDIANS, an order of reptiles. See Herpetology, Reptile, and Serpent.

OPHIR, a name applied first (Gen. x. 29) to one of the sons of Joktan, who are supposed to have made their home in Arabia, and secondly to a region from which the fleet of Solomon brought gold of the finest quality, algum or almug trees, and precious stones. Although mentioned together in the Bible, it is now agreed that Tarshish and Ophir are not necessarily in the neighborhood of each other. The precise situation of the latter is a matter of conjecture. Calmet placed it in Armenia, Hardt in Phrygia, Oldermann in Iberia, and others have proposed Carthage, Ormuz in the Persian gulf, Angola, Pegu, St. Domingo, Mexico, New Guinea, and Peru. There are however four theories in regard to its position, which have an appearance of probability: 1. That Ophir was a general name for distant southerly regions, just as we say the Indies for the East. This theory is supported by Father Joseph Acosta, Heeren, Tychsen, and Zenno. 2. That Ophir was on the E. coast of Africa, embracing Nigritia and the Sofala of the Arabians, now Zanzibar and Mozambique. Here have been found mines of gold and silver, which appear to have been worked extensively in ancient times. This theory is supported by Grotius, Huet, Bruce, D'Anville, and others. 3. That Ophir was in southern Arabia, because in Genesis Ophir is spoken of as one of the sons of Joktan who settled between Sabæa and Havilah; because, although no native gold now exists in Arabia, it was anciently found there; and because in the district of Oman there is at present a city of the name of El Ophir, once the seat of considerable Arabian commerce. This opinion has been adopted by Abulfeda, Niebuhr, Volney, Rosenmüller, Gesenius, and others. 4. That Ophir was in India, because that country abounds in the articles mentioned as brought from both Tarshish and Ophir; because several of these articles, such as peacocks and sandal wood, are found nowhere else; because the Hebrew words for apes and peacocks correspond with the words used for the same on the Malabar coast; and because there was in India, in the neighborhood of the modern Goa, a district *Σουπαρα*, called by Arrian *Ουππαρα*, mentioned by the ancient geographers. This theory is maintained by Josephus, Vitringa, Bochart, Reland, Ouseley, and others, and seems to have been adopted by the writers of the Septuagint.

OPHTHALMIA (Gr. *οφθαλμια*, from *οφθαλμος*, an eye), inflammation of the eyes. Under the head of ophthalmia may be included inflammation of all the various structures that enter into the formation of the eye; we shall here however confine ourselves to the consideration of inflammation of the external and visible tissues. Inflammation of the white of the eye assumes a variety of forms, dependent partly on the special character of the inflammation and partly on the constitutional peculiarities of the patient. 1. *Catarrhal Ophthalmia*. Here the eyes are bloodshot, the redness being produced by injection of the network of vessels which covers the white of the eye, and early in the disease is most marked where the conjunctiva is reflected from the lids, while it gradually lessens as we approach the cornea. The lids are swollen, and sometimes the upper lid overlaps a little the lower one. The patient complains of a feeling as if there were sand or some other foreign body in the eye, while there is a good deal of smarting and itching at the angles of the eyelids and along their free margins. There is at first lachrymation, which is soon followed by the secretion of a thin muco-purulent discharge which accumulates at the corners of the eyes, and which with an increased secretion of the Meibomian glands glues the eyelids together during sleep. The disease may be brought on by irritation or injury of the conjunctiva, though atmospheric influences are its commonest cause. It is ordinarily a mild and manageable complaint, but when severe or badly treated it may produce ulceration of the cornea or leave the lids thickened and granular. In all cases of disease of the eye, absolute rest of the organ should be enjoined, and it should be protected from strong light and heat. In mild cases of catarrhal ophthalmia, rest, a brisk purgative, and the occasional application of tepid water to the eye, are often all that is necessary. If the inflammation does not subside in the course of one or two days, a weak solution of nitrate of silver (gr. ii.–vi. ad ℥ i.) may be dropped into the eye once a day, and the eye may be bathed several times a day with a dilute solution of alum or of bichloride of mercury; while at night the edges of the lids may be smeared with dilute citrine or red precipitate ointment. In the severe form, bloodletting, either general, or more commonly by means of cupping glasses to the temples or of leeches, may be required. When the palpebral conjunctiva is congested and thickened, it may be scarified, and after the active inflammation has subsided it may be brushed over with strong nitrate of silver ointment or with undiluted vinum opii. 2. *Egyptian Ophthalmia—Purulent Ophthalmia.* This disease has probably existed at various places and various times under circumstances favorable to its development and propagation, but the attention of the public was first strongly directed to it during the wars of Napoleon, when the British army returning from the expedition to Egypt brought the disease with them and communicated it to other troops with whom they came in contact. The milder cases of purulent ophthalmia differ but little from the severer cases of the catarrhal form of the complaint; there is however even in these cases a very marked tendency to a granular condition of the lids. When the lids are everted they appear velvety, "the enlarged papillæ being separated into groups by furrows and fissures, or tuberculated and sarcomatous looking, like a mulberry." (Jones, "Ophthalmic Medicine and Surgery.") In the severer forms of the disease the eyelids are tense, livid, and often enormously swollen, the upper overhanging the lower one; on separating them they often become everted, from the congested and swollen state of the palpebral conjunctiva. The conjunctiva lining the globe, red and swollen, soon becomes raised up like a wall around the cornea (*chemosis*); a copious secretion of muco-purulent matter is poured out, runs down on the cheek, and bursts forth when the swollen lids are pressed asunder. The patient is unable to bear the light; there is burning pain in the eye, with pain around the orbit and in the temple, increasing at night. During the violence of the disease fever is present, though commonly moderate in degree. The inflammation is not confined to the conjunctiva, but extends to the sclerotic and the cornea; the latter becomes vascular, opaque, and often ulcerated; sometimes it bursts, discharging the aqueous humor. The disease was first attributed solely to contagion imported by the British troops from Egypt, but it is now certain that it arises sporadically, and that under favoring circumstances, such as over crowding, innutritious diet, or want of cleanliness, it becomes highly contagious. Purulent ophthalmia even in its milder forms requires prompt and decided treatment, both because the disease may at any time suddenly assume a violent and intractable form, and because of its tendency to produce thickening and granulation of the conjunctiva of the lids. When the disease is severe, or when it occurs in a strumous constitution, there is always great risk of permanent injury to the eye; in the worst cases the eye is sometimes destroyed in from 24 to 36 hours. In the severer forms of the disease recourse must be had to bloodletting, either general or by means of leeches or cupping glasses in the commencement; afterward the lids may be pencilled once a day with a solution of nitrate of silver, or brushed over with the lunar caustic in substance, and the eyes should be cleansed frequently with warm water or with a weak warm solution of alum or bichloride of mercury (alum gr. xvi., water ℥ viii., solve; or bichloride of mercury gr. i., hydrochlorate of ammonia gr. vi., water ℥ viii.). To relieve the congestion and swelling of the conjunctiva of the lid, it should be freely scarified, and when great chemosis is present recourse must be had to incision of the ocular conjunctiva. When the inflammation extends to the iris, as evinced by the irregularity and contraction of the pupil and by the change of color in the iris, mercury combined with opium may be cautiously administered, while the pupil should be dilated by the application of extract of belladonna around the eye. On the subsidence of active inflammation the diet should be improved, and iron, bitter tonics, and quinine may be necessary. Gonorrhœal ophthalmia closely resembles the severest and most intractable forms of Egyptian ophthalmia, and is to be treated in a manner precisely similar. Its only cause is the direct application to the eye of gonorrhœal virus. 3. *Ophthalmia Neonatorum.* New-born infants are subject within a week or two of birth to a disease closely resembling catarrhal ophthalmia. The infant is first observed to have the lids glued together after sleep, their edges are red and slightly swollen, and the eyes themselves are weak and watery. The inflammation is at first mainly confined to the lids; as the disease advances they become swollen, tense, red, and shining; on being separated, a thick, yellow muco-puriform discharge bursts forth, the lids often become everted, and their conjunctival surface is seen to be velvety and of a dark red color; the sclerotic conjunctiva is at the same time seen to be injected, and more or less chemosis is present. In the worst cases the cornea may become ulcerated and the eye destroyed; but if treated sufficiently early the disease is easily subdued. In mild cases bathing and cleansing the eye several times a day with warm water, or with a weak collyrium of alum water, may be all that is necessary. In severe cases the nitrate of silver solution may be applied to the eye daily, while the eye is cleansed 3 or 4 times a day with the alum or bichloride of mercury solution. Sometimes it may be necessary to scarify the conjunctiva of the lids. 4. *Scrofulous or Strumous Ophthalmia—Phlyctænular Ophthalmia.* Strumous ophthalmia is eminently a disease of childhood, and, excluding ophthalmia neonatorum, before 12 years of age inflammation of the eye assumes this form in 9 cases out of 10. While it is most common in children presenting other evidences of the strumous diathesis, it is not confined to them, but sometimes occurs in those whose constitutions are apparently without taint. It is early marked by the great intolerance of light which it occasions; the child seeks the shade, shelters the eye with the hand, bends down the head, and keeps the eyelids nearly closed. Any attempt to open the eye is resisted by a spasmodic closure of the eyelids, which the child even if inclined is unable to resist. On forcing them open there is often little appearance of inflammation, merely a faint blush of redness, with perhaps a few vessels running from the angles of the eye toward the cornea. As the disease advances, one or more phlyctænulæ form upon the cornea, and these bursting leave small ulcers. Sometimes small fasciculi of vessels may be seen extending toward these ulcers. There is commonly little suffering except from the intolerance of light, and from the excoriation sometimes caused by the tears running down the cheek. The child is fretful, the appetite irregular, and the digestive organs disordered. The disease is apt to be obstinate, with a great tendency to relapse. When ulceration of the cornea occurs, a permanent cicatrix (*leucoma*) is apt to be left. In bad cases the ulceration may penetrate deeply, the cornea be pierced, the aqueous humor discharged, and prolapse of the iris take place. The treatment may be commenced by an emetic of antimony or ipecacuanha (vini antimonii ii., or ipecacuanhæ ʒ i-ʒ ii., every 10 minutes until vomiting is produced); afterward a purgative dose of calomel and rhubarb, or of calomel followed by a rhubarb and soda mixture, may be given. The bowels should be kept open and their secretions regulated by minute doses of hydrargyrum cum creta or calomel with rhubarb, soda, and ipecacuanha; and finally sulphate of quinia may be given in doses of from 1 to 2 grains 3 times a day. This last in many cases seems to act like a specific. Iron, in the form of lactate, pyrophosphate, or ammonio-citrate, is often useful in conjunction with the quinine. An infusion of belladonna applied as a wash is frequently of service in relieving the photophobia. Finally, in some cases, counter-irritation by small blisters, applied behind the ears, may be necessary. 5. *Sclerotitis—Rheumatic Ophthalmia.* Here the inflammation in pure cases is confined to the sclerotic coat, though it is apt to extend to the cornea or iris, or to be complicated with conjunctivitis (catarrho-rheumatic ophthalmia). The redness of the eye is of a pink tint, forming a zone round the cornea when it is most marked, and gradually shading off toward the circumference of the eye, the vessels being minute and disposed in radiating straight lines. The cornea becomes dim, and vessels may be seen encroaching upon its margin to the extent of $\frac{1}{20}$ or $\frac{1}{10}$ of an inch, and then suddenly stopping. The iris becomes discolored and the pupil contracted and sluggish, and sometimes hazy; there is intolerance of light, lachrymation, and dimness of vision. The patient suffers from pain, compared to that of rheumatism, in the temple or around the orbit, which is increased at night and remits toward morning; and there is beside deep-seated pulsatile pain in the eyeball. There is constitutional fever, the appetite is destroyed, and the rest broken. One eye alone is commonly affected, or if both are attacked one is much worse than the other. In mild cases a full dose of calomel and opium may be given at bedtime, followed by a purgative on the following morning; afterward nitrate of potash, in doses of from gr. x. to gr. xx., may be given 3 times a day dissolved in barley water. In severe instances recourse must be had to the abstraction of blood, and small doses of calomel and opium are to be given every night until the gums are slightly affected. Counter-irritation by means of blisters is often decidedly useful; occasionally colchicum has seemed to be of service; the iodide of potassium has likewise been given with success.

OPIE, JOHN, an English painter, born at St. Agnes, near Truro, Cornwall, in 1761, died in London, April 9, 1807. His father was a carpenter, who, intending to bring his son up in his own occupation, strove to repress his natural fondness for painting. Opie, however, pursued his studies without instruction, and had acquired some skill in portrait painting, when he attracted the notice of Dr. Wolcott of Truro (Peter Pindar), who in 1781 brought him to London. There, the circumstances of his early life having become known, the "Cornish wonder," as he was called, soon was an object of popular admiration. So numerous were his visitors and sitters, that frequently the street in front of his residence was blocked up by carriages, and hardly a year had passed before he had painted the principal nobility. His portraits, remarkable for their vigor and truth, but lacking elegance and refinement, did not long continue to please, and his popularity sank almost as suddenly as it had risen. He had previously earned a handsome competency, and sought to increase it by marrying the daughter of a wealthy pawnbroker; but the match proving an unhappy one, they were divorced, and Opie married again in 1798. Deserted by his patrons, he was not discouraged, but set about correcting his defects, and applied himself also to the study of historical painting, in which he produced several popular pictures, as "The Murder of James I. of Scotland," "The Death of Rizzio," "Arthur taken Prisoner," "Hubert and Arthur," "Belisarius," and "Juliet in the Garden." As his early education had been neglected, he strove to remedy it by studying attentively the best English authors, and mingling in literary society. The professorship of painting at the royal academy falling vacant, he became a candidate for that position, having previously delivered a course of lectures at the British institution. He withdrew, however, in favor of Fuseli; but on the appointment of the latter to the keepership, Opie was elected professor. In that capacity he delivered in February and March, 1807, four lectures upon design, invention, chiaro-scuro, and coloring, but died before he had completed the course. His lectures, with a memoir of his life, were published in 1809 by his widow. His pictures, though wanting in dignity and grace, are distinguished for their reality and homely truth, and so much for their purity of color, that Fuseli pronounced the coloring in the "Murder of James I." unrivalled among the productions of his contemporaries, and approaching the excellence of Titian. He contributed also to various periodicals articles intended to promote the advancement of the fine arts in Great Britain.—**Amelia**, an English authoress, second wife of the preceding, born in Norwich, Nov. 12, 1769, died there, Dec. 2, 1853. She was the daughter of Dr. Alderson, a physician, and in early life manifested a strong taste for literary pursuits. In 1798 she was married to Mr. Opie, and, encouraged by him, published in 1801 a tale entitled "Father and Daughter," which became very popular. Previous to her marriage she had written much, but published nothing except a novel entitled "Dangers of Coquetry," which attracted no attention. In 1802 she published a volume of "Poems," in 1804 the novel of "Adeline Mowbray, or Mother and Daughter" (3 vols.), and in 1805 "Simple Tales" (4 vols.). On the death of her husband, she returned to her father's home in Norwich, where she spent the rest of her life. In the following year appeared "The Warrior's Return, and other Poems," and in 1809 a memoir of her husband, prefixed to his "Lectures on Painting." In 1812 she published "Temper," in 1813 "Tales of Real Life," in 1816 "Valentine's Eve," a novel in 3 vols., in 1818 "Tales of the Heart," and in 1822 "Madeline" and "Illustrations of Lying." Although these works want artistic finish, and the characters lack reality, yet the virtuous principles which they inculcate and the simplicity and ease with which they are told have sufficed to render them very popular. In 1825 Mrs. Opie joined the society of Friends, and in a great measure gave up her literary pursuits, publishing afterward only "Detraction Displayed" (1828), and "Lays for the Dead" (1833), although she constantly contributed to various periodicals. Accounts of her visits to France and Belgium appeared in "Tait's Magazine." Her life has been written by Miss C. L. Brightwell (1 vol. 8vo., London, 1854).

OPITZ, Martin, the founder of the Silesian school of German poetry, born in Bunzlau, Silesia, Dec. 23, 1597, died in Dantzic, Aug. 20, 1639. He studied at Frankfort-on-the-Oder and Heidelberg, travelled for some time with a rich Danish friend, and lived subsequently at various petty courts of Germany, officiating also for a time as professor of philosophy and belles-lettres at Weissenburg. He received a wreath of laurels from the emperor Ferdinand II. in 1625, was ennobled by the same monarch in 1629 under the name of Opitz von Boberfeld, and having fled before the horrors of the 30 years' war to Poland, he there became historiographer of King Ladislas IV., and fell a victim to the plague. His poems, embracing didactic, dramatic, and lyric productions, have found numerous editors. His principal merit consists in the introduction of a new prosody into the German poetry of his time.

OPIUM (named by Dioscorides μήκωνος ὀπός, sap or juice of the poppy), a drug prepared from the juice of the capsules of the poppy, *papaver somniferum*. Both the white and black varieties of the plant afford this product, but the opium of commerce is derived chiefly from the former. It is an annual herbaceous plant, growing 4 to 6 feet in height, with a smooth and sometimes branching stem, large leaves, and white or gray flowers. The capsules are smooth, of a rounded form, flattened at the ends, and contain a great number of small white seeds. This species of poppy grows wild in England and in the south of Europe, though supposed to be a native of Asia; and it is cultivated for its opium in Hindostan, Persia, Asia Minor, and Egypt, also in various parts of Europe, for the oil obtained from its seeds and for its capsules. In the United States it is grown only for its ornamental flowers. The process of extracting opium is similar in all countries, and varies but little from the method described by Dioscorides as practised 1800 years ago. It is obtained by incisions made in the unripe capsules a few days after the fall of the flower, care being taken not to penetrate the internal cavity of the shell. A white substance immediately exudes and forms in tears on the edges of the cuts. This is left for 24 hours, when it is scraped off in brownish lumps, with blunt knives. The peasants who collect it take with it a portion of the epidermis from the capsule, which increases the weight by about $\frac{1}{12}$. When thus gathered it is in a glutinous state, and after being moistened with saliva is pounded in earthen vessels. When of the right consistence it is folded in leaves and ready for the market. Each head yields but a few grains of opium, and but once. The seeds of those capsules which have been cut are good for sowing afterward. In England and France opium has been obtained, which was considered of as fine a quality as that from the East. In India the practice is to cut incisions in the green capsules with a knife of 3 or more blades, which is drawn along them in the hottest part of the day. The next morning the white juice which has exuded and concreted is scraped off. If the dews have been heavy or rain has fallen, the quality of the drug is impaired. The opium when collected is put into jars for transportation to the factories, where it undergoes a process to purify and prepare it for the market. About the end of March, and for some weeks after, these jars begin to arrive at their destination, and the contents are thrown into large vats, from which the mass is distributed to be made into balls. When dry, the balls are packed for sale in chests, in 2 layers of 6 each, with dried stalks, leaves, and capsules of the poppy plant. A chest of Bengal opium contains 160 lbs., and one of Bombay 140 lbs.—Of the several varieties of the commercial drug, that from Smyrna, known as Turkey or Levant opium, is the principal. It comes to us in flattened irregular masses, covered with pieces of dried leaves and the seed capsules of some species of *rumex*. When pure it is of a rich brown or fawn color, has a bitter, warm, and acrid taste, and a peculiar narcotic odor. The interior of the mass is sometimes soft, and by the heat of the hands the whole becomes soft and doughy; but by exposure to the air and to cold it grows hard again and brittle. The smell is peculiar, and to some persons very offensive. Its active properties are extracted by proof spirit better than by either water or alcohol alone, and the tincture thus obtained is laudanum. The composition of opium is exceedingly complicated. Chemists have obtained from it a great variety of active principles and constituents, as may be seen on referring to the analyses of Mulder, Schindler, and Biltz in the *Pharmaceutisches Central-Blatt* for 1837, which are also given by Dr. Hassall in his work on "Adulterations Detected." Other works also, which may be advantageously consulted, are Pereira's "Materia Medica," Brande's "Manual of Chemistry," and Gregory's "Outlines of Chemistry." The most important principles it affords are the alkaloids morphia, codeine, and narcotina. Some of the other constituents are combined with oxygen, and unite as acids with these alkaloids; such is meconic acid. Morphia, which contains in itself more than any other ingredient the active properties of opium, exists chiefly in combination with meconic and sulphuric acids. It is precipitated from the aqueous infusion of opium, and being purified and separated from narcotina it is obtained in transparent right rhombic prismatic crystals. These dissolve readily in sulphuric, hydrochloric, and acetic acids, and are taken up by 40 parts of cold or 30 of boiling alcohol. Boiling water dissolves only about $\frac{1}{100}$ part of morphia. Opium differs very much in its percentage of this principle; and as on its proportion the value of the drug chiefly depends, it will be seen that great uncertainty must attend its use in medicine. For this reason the salts of morphia are in great part substituted for it. From French opium Pelletier has obtained 10.38 per cent. of morphia, but no narcotina; and other chemists have obtained still larger proportions. The Levant opium averages about 8 per cent. of morphia, and those of India generally less than 8 per cent., and not more than 5.7 of narcotina. From some German opium, made from the black poppy, Biltz obtained from 16⅓ to 20 per cent. of morphia and 6¼ to 9⅓ of narcotina; but the white poppy of the same species produced 6.8 per cent. of morphia and 38 of narcotina. The proportion of water in the gum is also very variable, and the quantity is often regulated at the will of the dealers. The drug is moreover often imported deprived in part or wholly of its morphia. Beside this, the greatest variety of foreign substances are mixed with it to increase its weight, not only gums and other vegetable matters, the presence of which is partially at least concealed, but also sand, ashes, stones, and even lead. Dr. Pereira mentions that from a sample weighing 10 oz. he extracted 10 drachms of gravel stones.—Of the Constantinople opium there are two sorts, the large irregular flattened cakes, which are of good quality, and the small smooth cakes of a lenticular form, and covered with the poppy leaf; neither of these is equal to the Smyrna opium. The crop of Asia Minor for the year 1860, according to a statement of a correspondent in Smyrna of the "Chemical News," it is estimated will reach 3,600 baskets of 140 lbs. each, the average production being 2,500 baskets. The average export to different countries is given as follows: England, 400 baskets; America, 900; China, 1,000; Java, 500; Borneo, 100; France, 80; Germany, 60. The demand, however, fluctuates considerably with the price, especially for the China market. Of the Indian opium there are 3 varieties, known in commerce under the names of Malwah, Benares, and Patna, the last two being included under the head of Bengal opium. This is exported from Calcutta, the other from Bombay. The exports from the former city are about double those from the latter. The opium trade in India is a strict government monopoly. Any one may engage in its cultivation, but it must all be sold at a fixed price to the government. At Calcutta there are regular periodianimal, unless when bringing up a family. The teeth indicate its omnivorous character; its food consists of corn, nuts, berries, persimmons, roots, tender shoots, insects, young birds and eggs, mice, and similar small quadrupeds; sometimes it will kill poultry, sucking the blood but not eating the flesh, though it is far less mischievous in this respect than the mink, weasel, and skunk; it is very expert in climbing in search of food, hanging by the tail or swinging by means of it from one tree to another. When caught it has the custom of feigning death, and will sometimes in this condition bear considerable torture without exhibiting signs of life, all the time watching its opportunity to bite or escape; when wounded, it is very tenacious of life. Hunting the opossum is a favorite amusement in the South, especially for the negroes, who are very fond of its flesh in the autumn, when it is tender, fat, and flavored like that of a sucking pig; the sport begins after sundown, and is prosecuted with the assistance of a few curs, torches, and axes to fell the trees in which the animal takes refuge; they are easily caught in any kind of trap; many fall victims to wolves, the great horned owl, and other rapacious birds and mammals. The skin is fetid; the hair is dyed by the Indians, and is woven into girdles and other ornaments. When taken young, it is easily domesticated. It is very prolific, bringing forth 12 to 16 at a birth, in the early part of March, May, and July, in South Carolina, and having even a 4th brood further south. The nest is made of dried grass, under a bush or root of a tree, and sometimes the Florida rat or the squirrel is forced to give up its lodging place; the time of gestation is 15 or 16 days; the young when first born are about ½ inch long, blind and naked; the mother places them with her mouth in the pouch, which she holds open with her fore feet, where they soon attach themselves very firmly, each animal to its teat; they grow very rapidly, increasing nearly tenfold in weight during the first week, and are very tenacious of life; when about 5 weeks old, or of the size of a mouse, they leave the pouch, returning to it to suck, or at the approach of danger; they remain with their mother about 2 months; the mother is very fond of her young, which are carried about, twisting their tails around that of the parent, and clinging to various parts of her body; the females are prolific at a year old. This species is found from the Hudson river to beyond the Missouri; it is replaced in Mexico, Texas, and California by the *D. Californica* (Benn.), a smaller animal with a comparatively longer tail, much darker on the body and limbs, the head dusky with a brown streak through the eye, chin and throat sooty, and the ears black. The crab-eating opossum (*D. cancrivora*, Gmel.) inhabits chiefly the northern parts of South America; the color is a nearly uniform brownish black, with the upper half of the tail whitish; the hair is glossy but harsh, very long (even to 8 inches on the back), and dirty yellowish white next the skin; the total length is about 32 inches, of which the tail is one half. It prefers the swampy regions of Guiana, where small crabs abound, of which it is very fond; it also eats small birds, reptiles, and insects; its flesh is eaten by the Indians, and is said to resemble that of the hare. Several other species of this section are described by Waterhouse.—In the section containing opossums in which the pouch is rudimentary or entirely wanting, the size is smaller, and the young are carried principally on the mother's back, retaining their position by entwining their tails around that of the parent; here also belong about 20 species. Remains of opossums have been found in the calcareous caverns of Brazil, nearly allied to, if not identical with, existing species; Cuvier discovered in the gypsum quarries of Montmartre, of the Paris basin, an almost entire skeleton of a *didelphis* which shows the existence of marsupials in Europe in the eocene geological period, contemporaneous with the *anoplotherium*, *palæotherium*, and other extinct pachyderms. There is a web-footed opossum, constituting the genus *chironectes* (Ill.), in which the hind feet are powerful swimming organs; the fore feet are long, with an elongation of the pisiform bone resembling a rudimentary 6th toe; the females have a perfect pouch; the habits are aquatic. The only species described is the yapock (*C. variegatus*, Ill.) or water opossum. this rare animal has large cheek pouches, and some of the lower molars have their tubercles arranged in a single longitudinal series. The length is about 2 feet, of which the tail is 13 inches, in proportions like the common brown rat; the fur is soft and thick, gray above, with large sooty-black patches, especially on the back, and white below. It is found in Guiana and Brazil. In habits it resembles the otter, with which it was long classed; it is an excellent diver and swimmer, and feeds upon small fish, crustaceans, and other aquatic animals.

OPPERT, Jules, a French orientalist, born in Hamburg in 1825, of Jewish parents. He received a classical education in his native city, and applied himself to mathematics, and subsequently to the study of law at the university of Heidelberg; but a taste for philological studies induced him to enter at the university of Bonn the courses of Sanscrit under Lassen, and Arabic under Freytag. In 1847 he obtained the degree of doctor of philosophy from the university of Kiel for a thesis on the criminal law of the Hindoos (*De Jure Indorum Criminali*). He next studied the Zend and the ancient Persian, and published a treatise at Berlin on the vocal system of the latter language. His religion incapacitating him for a professorship in a German university, he went to France in 1847, and obtained the professorship of German at the lyceums of Laval and Rheims. Some researches on cuneiform inscriptions brought him to the notice of the French insti-

Oporto is said to be the cleanest town in Portugal. The E. part is built on a steep acclivity, and some of the houses are only accessible by steps cut in the rock. The principal public buildings are 80 churches, including the cathedral, which was originally erected in 1105, but has since been often altered and repaired; the bishop's palace; 15 convents, which are now used for secular purposes; the town hall; the royal hospital; the foundling hospital, where from 1,000 to 2,000 children are annually admitted; the exchange; and the opera house. There are several charitable institutions, a library of 70,000 volumes, a mint, a museum, a medical college, an academy of navigation and commerce, a seminary, and several superior and other schools. The English factory is a handsome edifice, with a library and public rooms attached. The town is lighted with gas, and ornamented with many gardens and fountains. It is connected with Lisbon by telegraph. A suspension bridge extends across the river to Villa Nova do Porto, which is chiefly inhabited by coopers and other workmen; and close to it, along the bank of the river, there are extensive vaults for storing wines. The manufactures of Oporto are not of very great importance, and consist chiefly of ironware and casks. Small vessels are built, and there are yards where ships are repaired. The bar at the mouth of the harbor can be crossed at high tide by vessels drawing 16 feet of water. There is a lighthouse at the mouth of the river. The Douro is navigable for barges about 100 m. inland, but it is liable to freshets which sometimes rise 40 feet, and render it difficult to keep the shipping from being swept out to sea by the force of the current. The value of the exports for the year 1858–'9 amounted to $6,174,547, and the imports to $6,693,286. The former consisted chiefly of wine, sumach, linen, and fruit. The wine is mostly the red wine called port, and is shipped principally to Great Britain. The imports consist of woollen and cotton goods, iron, hardware, salt fish, hemp, flax, and breadstuffs. In the year 1858–'9 the imports from the United States amounted to $246,005, and the return cargoes to $109,292. During the same period 98 steamers and 563 sailing vessels, of an aggregate of 91,870 tons, entered the port. Steam communication is maintained with other Portuguese ports, and with England by a line of British steamers. The roads in the neighborhood are bad, but some public conveyances ply between Oporto and the surrounding towns. In winter the weather is cold and damp, but in summer it is exceedingly warm.—Between the years 716 and 1092 Oporto changed masters several times, being alternately held by the Moors and the Christians; but in the latter year the Christians subdued the city, and have since retained it. John II. conferred many privileges upon the town, which were withdrawn in 1757 in consequence of the people rising to resist a wine monopoly. The French captured Oporto in 1808, but in the following year Wellington crossed the Douro, and they retired. The town was particularly conspicuous during the revolutionary period of 1820, the long struggle between Dom Miguel and Dom Pedro, when it was alternately the principal seat of both contending parties, and terribly suffered (1828–'33), and again during the revolution of 1847. (See PORTUGAL.)

OPOSSUM, the general name of the family *didelphidæ* of the order of marsupials, *le sarigue* of the French. In the present creation they are confined to America, especially to its tropical portions, extending from the middle states to Buenos Ayres on the south, and, with a few exceptions, to the east of the Andes. Some are as large as a domestic cat, but most are no larger than a rat, and many are smaller. The form is rat-like, but the muzzle is longer, ending in a distinct naked muffle; the ears are large, membranous, rounded, and almost naked; the body rather stout; tail generally very long, with only a few minute scattered hairs, except at the root, where it is covered like the body, and powerfully prehensile; the feet 5-toed, plantigrade, naked beneath; all the toes with moderate claws, except the inner one of the hind foot; the hind thumb is distinct, and opposable to the other toes; mammæ from 9 to 13, the odd one being in the centre of a ring formed by the others. The teeth are 50; incisors $\frac{5-5}{4-4}$, cylindrical, arranged in a semicircle, the foremost 2 the longest; canines $\frac{1-1}{1-1}$, the upper the largest; premolars $\frac{3-3}{3-3}$, 2-rooted, compressed, and pointed; molars $\frac{4-4}{4-4}$, 3-rooted, tubercular, with 5 prickly cusps. The stomach is simple, and the cæcum moderately long. They are mostly nocturnal, hiding among the foliage by day, and active at night in search of food. They are divided by Waterhouse ("Natural History of the Mammalia," vol. i., London, 1846) into two sections, according to the presence or absence of the pouch. Among those which have a well developed pouch belongs the common opossum (*didelphis Virginiana*, Shaw), about 20 inches long to the base of the tail, this being 15 inches additional; the hair is long, soft, and woolly, whitish at the roots and brownish at the tip, giving a dusky color to the animal; long white hairs are mingled with the ordinary fur of the body; face near the snout white, dusky around the eyes; ears black, with the base and margin whitish; legs, feet, and basal portion of tail brownish black. The mouth is wide, the jaws weak, the eyes small and high on the forehead, whiskers stiff, and tail capable of involution only on the under side. The opossum is sometimes active by day, but generally prefers to prowl in bright and still nights around plantations, rice fields, and low swampy places. The gait on the ground is slow, heavy, and pacing, but on trees, to which they take when pursued, their motions are very lively; the sense of smell is acute; it is fond of lying on its back in the sun for hours. It is generally a solitary

"Optics" of Euclid, Hero's "Catoptrics," and Ptolemy's "Optics." In the last of these occurs an elaborate collection of measurements of the refraction at different angles, from air to glass, and from glass to water—tables of much interest, as furnishing the oldest extant example of an accurately conducted physical investigation by experiment. Alhazen, who is believed not to have borrowed from Ptolemy, also gives full tables of refraction. Tycho Brahe introduced a correction for atmospheric refraction into astronomical calculations; the telescope appears to have been invented separately by Metius and Jansen about the year 1600; and Kepler, with his usual fertility of mathematical elements and of hypotheses, and incited by these advances, strove earnestly to find the true law of relation of the angle of refraction to that of incidence, but reached only a near approximation. The actual relation, known as the "law of the sines," was discovered by Willebrord Snell, about 1621. Descartes, who unjustly claimed this discovery, has really the merit of having applied it so as to explain the general formation and the angles of the rainbow. Newton in 1672 published his remarkable discoveries in connection with the decomposition of light by aid of the prism, with the doctrine and measure of the refrangibilities of the different colors, and the agreement of the phenomena with those of the rainbow. His discoveries resulted in improvements in the telescope, and also in explaining a prominent defect in the refracting telescope, that of the colored borders of images, due to chromatic aberration. Dollond in 1757 discovered the possibility of achromatic combinations of lenses, and produced the first of these. The first notice of double refraction is that of Bartholin, 1669; but Huyghens first satisfactorily explained the phenomena, by means of his since renowned undulatory theory of light, his treatise upon which was written in 1678, and first published in 1690. He also first observed the fact of polarization; though the distinct discovery of this phenomenon was not made until about 100 years afterward, namely, by Malus, in 1808, who commenced a thorough study of the subject; and this was much extended by Brewster, Biot, and Seebeck. Hooke appears first to have studied the colors of thin plates, which he described in 1664; and these colors Newton and Young afterward turned to very important use. Diffraction, and the fringes of shadows, were discovered by Grimaldi in 1665; depolarization, with the production of periodical colors in polarized light, by Arago in 1811; the relation of optical properties to the symmetry and axes of crystals, by Brewster in 1818. The general explanation of most of these phenomena by the undulatory theory is due to the labors of Young and Fresnel, in the early part of the present century; and these have since been carried forward and corrected by the labors of Airy, Lloyd, Cauchy, and many others. Still other discoveries in optics, especially the more recent, as those made in connection with color, the velocity and physical modifications of light, the various optical instruments, and photography, will be found mentioned under the proper heads. I. Catoptrics. When rays of light fall on a surface of an opaque, and in some degree smooth or polished body, a portion of those rays, greater or less, but never the whole, is thrown off again from such surface, and this light is said to be reflected. Opaque surfaces reflecting in a high degree are termed *specula*, or mirrors. Suppose a ray or minute beam incident on a polished plane surface in any direction whatever, and let fall at the point of incidence a perpendicular to the surface; then, first, it is universally true that the reflected ray will be situated in the same plane in space in which this perpendicular and the line of the incident ray are situated. Thus we may always determine within what plane, vertical to the reflecting surface, to look for the reflected ray. The angle included between the perpendicular and incident ray is termed the angle of incidence: that between the same perpendicular and the reflected ray, the angle of reflection. These angles are always equal. Thus, the fundamental and universal law of reflection from plane surfaces is simply this: the paths of the incident and reflected rays always lie in the same plane with the perpendicular to the reflecting surface drawn to the point of incidence; and in that plane the angle of reflection is always equal to the angle of incidence. This law is strictly verified by experiment and measurement. Necessary consequences of its truth are, that beams or rays parallel before incidence on a plane mirror, will remain parallel after reflection, and that divergent rays will after reflection continue to diverge, and convergent rays to converge, at the same rates as before impinging on the reflecting surface. All the facts relating to images in plane mirrors follow from the same law. But a very important truth in relation to images, and one too often lost sight of, must be premised. Parallel rays or beams of light, or a single beam, may show us the existence of the object emitting them, but they do not enable us to determine its place or distance. We can do this in regard to an object or image, or any point in it, only by means of pencils of light, divergent in themselves, proceeding from the points or point to the eye. We necessarily judge of the size of this object chiefly by the angle subtended at the eye by a line joining its extreme points (the visual angle); and of its distance by the amount of reconvergent action the eye must exert upon the pencils painting its several points, in order to focus them upon the retina, as well as by the convergency of the axes of the two eyes upon the place of the object, if near. (See Stereoscope, and Vision.) Now, the pencils of light from the various points of an object before a plane mirror, being divergent at the same rate after as before reflection, and the eye of necessity seeing the object in the direction in which the rays of light finally come to it, the image in such case must be, in view of these principles, as it is, seen apparently behind the surface of the mirror, at the same distance as the object is before it, and situated in the course of a straight line let fall from the object perpendicularly on the plane of the mirror, or that plane extended; and it must be erect, but reversed laterally, so that the right side of the object shall show at the left side of the image. If the object be situated at an angle with the mirror surface, its image will form with the surface an equal angle, but in the opposite direction. Hence, with the mirror horizontal, erect objects will be seen in it exactly reversed; and thus is explained the inverted position of the images of trees and banks seen in standing water. When an object is between two plane mirrors nearly parallel, the primary images seen in each of these are reflected as if at a greater distance in the other, and so on, forming in each mirror a long succession of images, growing more and more remote. As the mirrors are turned, approaching a right angle with each other, the number of repetitions grows less, and the whole take a circular arrangement. At a right angle, the object and 3 images are visible, the 4 being at points in the circumference of a circle; at 60° there are 5 images, or 6 forms symmetrically arranged; at 45°, 8 forms, &c. (See KALEIDOSCOPE.) The amount of light reflected from a surface of given size and polish is different with mirrors of different material; and it increases in all cases with increase of the angle of incidence, though not in all cases regularly. We observe the image of the sun in water near midday without difficulty; but when near the horizon the brightness of the reflected light is usually intolerable. Remembering that the surface impinged on by any single ray of light is an extremely small one, it will be seen that any curved reflector is in effect simply a collection of a great number of such minute planes; and that, if we consider the rays falling on such a surface as reflected from the same points in as many different planes tangent to the surface at the points of incidence, we at once extend the law for plane surfaces to all curved surfaces whatever. To the points of incidence of rays on any curved surface, let fall lines perpendicular (normal) to the surface at those points; each reflected ray will be in the plane containing its incident ray and its proper normal; and the angles of reflection and of incidence will be equal for each ray on the two sides of its normal. Ordinary concave and convex mirrors are parts of spherical surfaces. The former must reflect parallel rays convergent, and convergent rays more rapidly so, &c. The latter must reflect parallel rays divergent, divergent rays more so, &c. Parallel rays falling on a concave mirror are reflected to a focus distant from the surface half the radius of curvature of such surface, *i. e.*, at ¼ the diameter of the sphere; from a convex mirror, divergent at such rate that they appear to come from a point correspondingly distant from the mirror on the other side; this point is then the virtual focus. The focus of parallel rays for the concave mirror is called the principal focus. In fact, this is the focal point only of rays falling on a mirror of small aperture (arc), say not more than 6°. Rays from rings of surface without meet in foci successively nearer to the mirror. This effect is the "spherical aberration" of mirrors. It can only be corrected by resorting to mirrors having paraboloid surfaces; a well known property of the parabola causing all rays parallel with the axis of the mirror to be reflected rigidly to a single focus, and hence all rays emanating from a source of light in such focus to be thrown off in a rigidly cylindrical beam. Hence the use of parabolic reflectors for the lights of lighthouses, locomotives, and similar purposes. The object before a common concave mirror being anywhere without the centre of curvature, the image is between such centre and the focus, inverted, real, and reduced in size; and the places of object and image are interchangeable—the foci are "conjugate," *i. e.*, mutual. When the object is brought within the principal focus, the image is erect, virtual (behind the mirror), and magnified. The image with convex mirrors is always virtual, diminished, nearer the mirror than the object, and erect. II. DIOPTRICS. When a ray or a minute beam of light passes through any surface of division, separating vacuum from any medium, or any one medium from another of different density, or the reverse of either of these cases, a portion of the light is reflected at such surface, and another portion, never the whole, is transmitted. This transmitted light is always bent out of its course at the surface of division, never within the medium, if this be homogeneous; and the light is then said to be refracted. If the medium be one of varying density, like the atmosphere, the ray is bent continually within it; but this case is equivalent to its passing through a rapid succession of surfaces, dividing media more and more or less and less dense. Suppose a ray or minute beam of light transmitted at a point through a plane dividing surface between space and a medium, or any two media, and coming to such point in any direction whatever; let fall to this point of transmission a perpendicular to the surface, and passing through it, so as to lie in both the media; then, first, it is universally true that the ray, after refraction, will be situated in the same plane in space in which this perpendicular and the line of the ray before refraction are situated. Thus we may always determine within what plane, vertical to the refracting surface, to look for the ray after refraction. The angle included between the perpendicular line and the ray before refraction is termed the angle of incidence, and may be represented by I; that between the same perpendicular on the other side of the surface and the line of the ray after refraction, is the angle of refraction, R. These angles, the media being of different density, are never equal; nor have the angles themselves any direct ratio to each other. But if in the course of the ray before, and also after refraction, equal radii measured from the point where the ray penetrates the surface be taken, and from the extremities of these radii perpendiculars be let fall on the perpendicular line already drawn, these latter perpendiculars will be the sines of the angles in which they are respectively, *i. e.*, the sines of the angles of incidence and refraction. For any two given media, no matter what the angle of incidence, the corresponding angle of refraction is such that the ratio of the sines is always the same—is a constant value. Thus, the fundamental and universal law of refraction at plane surfaces is also simple, though the conditions to be kept in view are much more complex than in the case of reflection; it is this: The paths of the ray before and after refraction always lie in the same plane with the perpendicular to the refracting surface drawn to the point of transmission, and on opposite sides of that perpendicular; and in that plane, the sines of the angle of incidence and of refraction have in all cases the same ratio for any two given media. This is "Snell's law;" and it also is rigidly verified by measurements. Suppose the refraction be that of a ray passing from air into ordinary crown glass; then, for all angles of incidence, the ratio $\frac{\sin I}{\sin R} = \frac{3}{2}$, very nearly. The angle of incidence is the greater, and the refraction is therefore toward the perpendicular. This is the case whenever the ray passes from a less to a more dense medium. And as, in all such cases, we have $\frac{\sin I}{\sin R} > 1$, this fact of a ratio greater than unity expresses a refraction toward the perpendicular. The value the ratio $\frac{\sin I}{\sin R}$ may have, being constant for any two media, is called for such media the "index" or "coefficient of refraction," c. From air to water, $c=\frac{4}{3}$; from air to diamond, $c=\frac{5}{2}$; from water to crown glass, $\frac{9}{8}$; from crown glass to diamond, $\frac{5}{3}$. When light passes successively from air through water, crown glass, and diamond, these refractions are not added; but the ray has in any one of the media precisely the course it would have had if passed from vacuum or from air directly into the given medium. Thus, in the case supposed, the successive refractions would be $\frac{4}{3}\times\frac{9}{8}\times\frac{5}{3}=c=\frac{5}{2}$, the same as if the light had passed at once from air to diamond; and so in all cases. When the ray passes, on the other hand, from a denser medium to a rarer, we always find the ratio $\frac{\sin I}{\sin R} = c < 1$; and this signifies that the ray is then bent from the perpendicular. Thus, from crown glass to air, $c=\frac{2}{3}$; from water to air, $c=\frac{3}{4}$; and so on. That is, in all these cases, sine I must be less than sine R; or sine R > sine I. But the angle of incidence may vary from 0° up to 90°; and the angle of refraction cannot exceed 90°, because this is the whole space between any surface and a perpendicular to it. Hence, for light going toward the rarer medium, there will be a limit of the angle of incidence beyond which no angle of refraction can be found sufficiently large. Rays meeting the surface at an angle greater than this limit, cannot pass the surface. There is a mathematical impossibility, and hence a physical; and the light is wholly thrown back into the medium, *i. e.*, totally reflected. This total reflection is readily observed on looking in certain directions into a prism; its highly transparent surfaces serve as mirrors for objects situated so that their light falls without a certain angle; for crown glass, 41° 48′. Any small transparent body of a density unlike that of the medium it is in, and bounded by a curved and a plane or by two curved surfaces, is termed a lens. The forms of lenses, other than the spherical, are: 1, double convex; 2, plano-convex; 3, double concave; 4, plano-concave; 5, meniscus, having its convex more rapidly curving than its concave surface; 6, concavo-convex, having its concavity the greater. Lenses are most conveniently made of glass, and with spherical surfaces. As with mirrors, so with lenses, by considering any curved surface as composed of a multitude of minute plane surfaces, we at once extend to them the law of refraction; and it is then only necessary to know the angles of incidence and the value of c, in order to trace the course of the rays. The refraction toward a perpendicular at the first surface of a lens, will compare with that from the perpendicular at the second surface, both occurring in the same actual direction in space. A ray passing through the centres of curvature of the surfaces, passes also through the middle point of the lens, and is not refracted. This line is the axis of the lens. Rays parallel to this axis are, when the lens is convex, brought to meet in a real focus lying at some point in the axis; they are made to diverge as from a virtual focus somewhere in this line, whenever the lens is concave. The aperture of a lens is the total arc or number of degrees of curvature of surface on the two sides of the axis, through which light is allowed to pass. Hence, it does not depend on size alone; and the minute lens which is merely a bead of glass has almost necessarily a much greater aperture than a lens of some inches or feet focus. The principal focus of a double convex or double concave lens, of crown glass of equal curvatures, is at the centre of the sphere of which the lens surface forms part. The focal distance is equal to radius; for the plano-convex and plano-concave, it is equal to twice the radius. The general rule for finding the focal distance is: For the meniscus and concavo-convex lens, divide twice the product of the radii of curvature by their difference; for the double convex and concave, by their sum. When, for the double convex lens, the object is at any distance greater than twice the radius, on one side, the image is always somewhere between the focus and the other side of the sphere or the distance of twice the radius, on the other; and here, again, the places of object and image are interchangeable; the foci are conjugate. When the object is brought within the principal focus on either side, the image is then on the same side, or virtual, erect, beyond the focal distance, and magnified. So, in the former case, the real image is magnified by bringing the object nearer the focus. The simple act of bringing an object at less than the ordinary distance of distinct vision from the eye, as when we look at small objects close to the eye through a pin hole, increases the visual angle, and so proportionally magnifies them. Hence it is that, for objects viewed as placed within the principal focus, the magnifying power increases with diminution of focal distance of the lens, being determined conveniently by the quotient of the ordinary limit of vision, say 8 inches, divided by the focal distance of the lens. Thus a lens, focal distance $\frac{1}{50}$ of an inch, has a linear magnifying power of $8 \div \frac{1}{50} = 400$ times; and of course a superficial magnifying power of $400^2 = 160,000$ times. Thus are explained the very high powers obtained by the use of minute spherical lenses in form of beads, of perfect glass. But it is only for a small aperture, say 6° or at most 8°, that the rays are brought rigidly to one focus. Enlarging the aperture, the successive rings lying without bring their light to foci successively nearer the lens; passing their foci, these rays diverge, and form an indistinct border of light about the image. This is spherical aberration of lenses. It is to some extent corrected by peculiar forms of lens, hence called aplanatic; the least spherical aberration thus obtained is with a double convex lens, the radii of whose curvatures are as 1 : 6; this, with the surface whose radius is 1 toward the object, gives an aberration of $1\frac{7}{100}$ times its own thickness. III. DISPERSION. The dispersion of light is the separation of the colors existing, actually or potentially, in white or solar light. It may occur by refraction, by diffraction, or by interference. (See COLOR.) The total length of spectrum obtained by prisms, *i. e.*, the total dispersion, and also the amount of spreading out of the different colors, differ with the nature of the medium or prism employed. Calling the refrangibility of the violet ray V′, and of the red R′, for a given prism, and the coefficient of refraction c, the dispersive power is $=\frac{V'-R'}{c-1}$. This ratio, for oil of cassia, is .139; for flint glass, .052; Canada balsam, .045; diamond, .038; crown glass, .036; water, .035; rock crystal, .026. Thus, for example, the total dispersion and length of spectrum for a hollow glass prism filled with oil of cassia, are about 4 times those of crown glass; and of flint glass, 1½ times those of crown glass. Now, lenses, like prisms, must disperse or decompose light. The different colors are really brought to foci that, in the case of convex lenses, lie in the following order: the focus of the least refrangible or red ray corresponds with the true place of the principal focus; and the more refrangible rays are brought to foci within this, as the orange, yellow, green, blue, indigo, and violet, lying nearer and nearer to the lens. These colored rays cross at their foci, and again diverge; the effect is a colored border or fringe, mainly blue or red, as the case may be, surrounding the image, and more marked as the aperture of the lens is greater, and in objects toward the margin of the field of view. This is chromatic aberration of lenses. It is almost perfectly corrected by combining lenses in various ways, thus forming achromatic combinations. The principle of these is usually that of correcting, for example, the less dispersion of crown glass by the greater dispersive power of flint glass. To do this, a concave of flint of less entire curvature is combined with a crown glass, convex, and of the greater entire curvature. The dispersion is corrected; but part of the refractive or lens effect remains undestroyed, and the focal distance becomes greater. The solar spectrum is not a succession of colored rays merely. In the lower half of the spectrum, not in the upper, that is, from the green down through yellow and orange to red, the thermometer is more and more affected; and with some sorts of prism, it rises highest in the dark space without the red ray. So, from the green space up through blue and indigo to violet, the sensitized surface of a plate prepared for photographic purposes is more and more speedily and powerfully affected; and with some sorts of prism this effect is greatest in the dark space beyond the violet. Thus, there are three overlapping spectra; that of heat rays being generally lowest or least refrangible; of color, intermediate; of photogenic or actinic rays, highest or most refrangible; and the first and last of these, always present, being invisible. In 1802 Dr. Wollaston discovered in the spectrum 3 or 4 fixed dark lines, or minute straight bands crossing the colored spaces transversely. These lines were rediscovered by Fraunhofer of Munich, and increased by accurate observation to a number that, according to the state of atmosphere or medium, and other circumstances, varies from 600 to 2,000. These occur in fixed positions in certain colors; and hence, certain prominent ones, marked A, B, C, D, E, F, G, have been used to determine the position and refrangibility of the colored rays. The lines are doubtless due to interferences of rays. The different fixed stars have each its own system of dark lines, unlike that of solar light; though, singularly enough, Sirius and Castor give the same system. The electric light and artificial light give various systems of bright bands or lines. Kirchoff (1860) finds that a candle and all sodium flames give a double bright line corresponding to the double dark line, D, of the solar spectrum. He finds that, passing the sodium-flame light through another sodium flame, the lines become dark, as in the case of solar light. Hence, he concludes that the bright D proves the presence of sodium in a source of light; and the dark D of sunlight, the presence also of sodium in the sun's atmosphere, the darkening being due to interference. So, Brewster's bright lines, A, a, B, with a saltpetre flame show potassium; and this is also in the sun's atmosphere. The lines corresponding to lithium are not found. Thus is opened a new field of inquiry of the highest interest; and further results are promised.

OPTIMISM, in philosophy, that doctrine according to which this world, considered as a whole, is the best that could have been made. Its imperfections are more apparent than real, as the evils existing in the world are only evils when viewed by themselves, and when considered in relation to the whole subserve the general good. The doctrine was usually stated in this form: if this world were not the best, God either did not know a better one, or was unable or unwilling to create it; none of which suppositions can be true, as in that case his omniscience, omnipotence, or benevolence would be impugned. The doctrine was first fully developed by Leibnitz in his *Theodicea*, who however conceived the world to be in a progressive state, and constantly advancing toward greater perfection. Optimism was made the subject of boundless ridicule by Voltaire in his *Candide*. Dugald Stewart affirms that the optimism of Plato differs from that of Leibnitz in not leading to a denial of the freedom of the will, every thing being right so far as it is God's work, the sins of free moral agents and the evils in the world being no serious objections to the perfection of the universe, as our view is now only limited and narrow. Optimism in some form has been held by the best philosophers of all ages; by the followers of Plato, the stoics, and the Alexandrian school in antiquity; and by Anselm and Aquinas in the middle ages; but it was most fully developed by the schools of Descartes and Leibnitz in modern times.

OPZOOMER, Carolus Wilhelmus, a Dutch philosopher and publicist, born in Rotterdam, Sept. 20, 1821. He studied at the university of Leyden, and while there wrote a "Letter to Da Costa," and "Examination of the Dutch Annals of Theology," in both of which he attacked the principles of Christianity. In 1846 he became professor of philosophy in the university of Utrecht, and in 1848 member and secretary of a royal commission to reform the constitution of the universities. In this position he advocated the merging of the three universities into one; and when the proposition was given up on account of the opposition manifested by the institutions themselves, he published his plan under the title of "Project of a Bill for the Reform of the Universities." He wrote a political treatise "On Direct and Indirect Elections;" and among his philosophical writings is *De Weg der Wetenschapen* ("The Path of Knowledge," Utrecht, 1851; German translation, 1852), a work on logic, in which he advocated the most absolute rational empiricism, and sought to introduce into ethics the method of the natural sciences. Of his other works, an *Oratio de Philosophia Naturæ* (Utrecht, 1852), "Conservatism and Reform" (1852), and a "Commentary on the Civil Code of Holland," are most noteworthy.

ORACLE (Lat. *oraculum*), in ancient religion, a revelation believed to be made by some divinity in reply to the questions of men; applied also to the sacred place or establishment where such revelations were communicated. The responses were given either by the mouths of priests or priestesses, or by other signs. They were usually uttered in a state of delirium (*furor divinus*) or divine inspiration, and they consisted often of incoherent words. When the presages were given by signs, the oracles rank only among methods of divination. Thus the responses of the oracle at Dodona were given either by the movement of leaves, the noise of brazen vessels, or the murmuring of the waters of a fountain. The sibylline oracles, or the books containing the words of the sibyls, were consulted at Rome only by order of the senate and in presence of a magistrate. It was not unusual to attribute to the shades of the dead the power to return and unveil the future to mortals. The art of evoking them, called necromancy, existed among the Hebrews, Thracians, Greeks, and Germans. That sacerdotal fraud played some part in the ancient oracles is not doubted. The hollow statue at Antioch, the speaking head in Lesbos, and the Theraphim, or embalmed and speaking heads mentioned by the rabbins, are among the instances of deception. But the probable origin of oracles, and the cause of the faith in them, was the belief that the involuntary utterances of a person suffering under hallucination, and also other accidental noises and movements under certain circumstances, proceeded from some divinity. Chance was thus made a manifestation of the will of the gods. Springs, fountains, grottoes, and caves, the waters of which were discovered to have delirious or narcotic effects, were therefore selected to be the sites of oracles. Thus at Didyma the vapor of the water affected both the priestess and the person who came to consult her; at Colophon, the priest drank of the water of a secret well in a cavern; and at Delphi, of the fountain of Castalia, while a vapor issued from a cavern beneath the tripod. In some of the oracles artificial fumigations were employed. Most of them claimed to have been founded either by a divinity or famous diviner, and possessed a body of mythical traditions. Oracular responses were usually given in Ionic hexameters, though, to avoid the scandal which followed when the god of verse erhibited metrical defects, they were subsequently in prose. They were in general remarkable for obscurity and equivocation, yet they exerted great political as well as religious influence. The priests were often accomplices of the statesman, and the responses of the Pythia were not authoritative till they had been written and interpreted by the presiding officer. Delphi, which was the common centre of all the oracles of Apollo, thus became the religious and political metropolis of Greece, extended its authority over the Romans after their conquest, and was called by Cicero *oraculum orbis.* Its power has been likened to that of the Vatican in the middle ages. Oracles were sometimes fabricated or modified after the event, the most remarkable example of which was the sibylline predictions which Christians of the 2d century produced in order to convince pagans that the coming of Christ had been foretold even by their own gods. Even while they were in the highest popular repute, oracles were sometimes contemned by the learned. Aristophanes made them objects of raillery; Demosthenes accused the Pythia of favoring Philip; and Cato of Utica disdained to interrogate Jupiter Ammon. Eusebius counts 600 authors who had assailed them. The Neo-Platonists referred the origin of oracles to demons, and Plutarch explained by the death of demons the cessation of some of the oracles. The theurgists sought to revive them and to oppose their power to Christianity. Julian vainly attempted to restore the faith in them. The early Christians explained their predictions also by the agency of demons, whom they identified with fallen angels, the associates of Satan. Eusebius and others affirmed that they became silent at the birth of Christ, and assigned as the reason that Christ put an end to the power of Satan on the earth, and to the worship offered him under the name of God by the gentiles. This view prevailed for many centuries. The Urim and Thummim and the Bath-kol (literally, daughter of the voice, echo) of the Jews have been supposed by some critics to resemble the heathen oracles.—Among the Greeks, Jupiter was less frequently regarded as the source of oracular revelations than Apollo. There were 22 oracles for the consultation of the latter divinity, the most important of which was at Delphi. (See DELPHI.) The principal others were that at Abæ, highly esteemed by the Phocians, which promised the victory to the Thebans before the battle of Leuctra, and which, though burned by Xerxes, retained its power, and was in repute as late as the reign of Hadrian; that of the Branchidæ at Didyma, which combined purifying or atoning rites with the practice of responding, was administered by a family having the hereditary gift of prophecy, received from Crœsus as rich presents as that at Delphi, and was burned by the Persians, but continued to be consulted; that at Claros, in the territory of Colophon, the responses of which were given through an inspired prophet, and which was consulted even under the Roman emperors; that at Ismenion, in Bœotia, the national sanctuary of the Thebans, which interpreted signs instead of speaking from inspiration; that at Patara, in Lycia, where the prophetess was obliged to wait a whole night in the temple before making communications; and that at Telmessus, also in Lycia, attached to a fountain, the priests of which interpreted dreams and other marvellous events. The most important oracles of Jupiter were at Olympia in Elis, and Dodona in Epirus, at both of which he only sent signs for men to interpret. A victim was offered at Olympia by those who came for consultation, and the priest divined from accidental circumstances attending the sacrifice. This oracle was chiefly designed for those intending to take part in the Olympic games. That at Dodona was one of the most ancient and celebrated. The response was given in sounds produced by the rustling of the wind in an oak tree ("the speaking oak"), which were interpreted in early times by men, but afterward by old women. It was esteemed for impartiality and for being inaccessible to bribes, but early declined in importance. Its sacred oaks were cut down and its temple demolished by the Ætolians in 219 B. C., but it was consulted until the 3d century A. D. There was also an oracle of Jupiter Ammon in Libya, said to have been founded by Egyptians from Thebes, which was first made known to the Greeks by the Cyreneans, and was afterward frequently interrogated by them, but was in decay in the time of Strabo; numerous priests were in attendance. The other divinities were consulted by oracles only on the special departments over which they presided. Thus, Ceres foretold at Patræ in Achaia the fate of sick persons by means of a mirror suspended in a well; Mercury was consulted at Pharæ in Achaia, the person going away after a ceremony, and accepting the first remark that he heard from any one as the response of the divinity. There was an oracle of Pluto and Proserpine near Nyssa in Caria, at which priests divined concerning the remedies for illness by passing a night in a sacred grotto, where they often took their patients with them, who would themselves fall into a prophetic sleep. To other persons the place was fatal. An annual festival was celebrated there, the young men driving into the cave a bull, which immediately fell dead. Heroes sometimes acted as mediators to reveal the will of Jupiter to men. The spot near Thebes where Amphiaraus was said to have been swallowed up was the seat of an oracular sanctuary. Birds never alighted there, and cattle never grazed in the neighborhood. After a fast the inquirers slept in the temple, and received the revelations in dreams. If they recovered, they were obliged to drop some money into the well of Amphiaraus in the interior of the shrine. Pausanias calls the oracle of Amphilochus, at Mallas in Cilicia, the most trustworthy known in his time. The oracle of Trophonius, at Lebadea in Bœotia, was held in the highest esteem until a very late period. Several days of preliminary purification were required before consultation, and during the sacrifices a soothsayer explained from the signs whether the hero would admit the inquirer. If allowed, the latter went into the cave of Trophonius, was received by two boys and bathed in the river Hercyna, and then drank in succession of two wells, one of which made him forget all his former thoughts and the other prepared him for the visions which he was about to have. He then descended by a ladder to the bottom of the cave, and various reports were made of what was there seen, and the responses of the priests were modified according to these reports. Apollonius of Tyana passed 7 days in this cave. There were numerous oracles of Æsculapius, the most celebrated being that of Epidaurus in Argolis, the temple of which was inscribed with the names of persons who had recovered by remaining there one night. It has been asserted that animal magnetism must have been known to the priests of Æsculapius. Oracles where divination by necromancy was practised existed near Lake Avernus in Italy, and at Heraclea on the Propontis. In Italy there were no oracles where the priests spoke by inspiration. The principal Roman oracles were those of Faunus in the grove of Albunea and on the Aventine hill, where the inquirer received his answer in sleep in prophetic visions; those of Fortuna, where the responses were given by lot; and that of Mars, which in early times existed at Tiora Matiene, and at which the revelation was given through a woodpecker.

ORAN, a province of Algeria on the Mediterranean, extending 180 m. from the mouth of the Shelliff to the Wady-Ajerud, and bounded N. E. by the province of Algiers, S. and S. W. by the Atlas mountains, and W. by the empire of Morocco; area, 38,899 sq. m.; pop. 600,000, one half of whom are Arabs; European pop. in Dec. 1857, 55,740. The province is subdivided for administrative purposes into the departments of Oran, Mostaganem, Tlemcen, Mascara, and the Sahara tribes. It has two principal hill ranges, the Jebel-Beni-Smiel, and Chareb-el-Rieh. The rivers have a course generally from E. to W., and near the capital there is a considerable sheet of water called Lake Sale or Sebka. A great part of the soil is fertile, and there are large tracts covered with forests. The temperature is in general higher than that of the other provinces of Algeria, but it is somewhat moderated by steady N. W. winds.—ORAN, the capital, is situated on a bay of the same name, 209 m. W. S. W. from Algiers; pop. in 1857, 27,269, of whom 19,283 were Europeans. It stands on both sides of the mouth of a small stream called the Oued-el-Rakhi, and at the foot of the peak of St. Croix or Mergiagio. It is well fortified, and in general well built. The principal edifices are a mosque, now converted into a parish church, another church built by the Spaniards in the time of Charles V., a hospital, a castle, and an arsenal. It is badly supplied with water, and the country around is arid and barren. The climate, though intensely hot, is generally considered healthy. There is no good anchorage immediately around the town, but Mers-el-Kebir, 3 m. distant, has a large and commodious harbor, which has recently been greatly improved. There is a considerable trade, the aggregate value of the imports and exports being about $3,500,000. Oran was long a subject of contention between the Spaniards and the Moors. The former, under Cardinal Ximenes, took it in 1509, and retained possession of it till 1708, when the Algerines expelled them. The Spaniards regained it in 1732, but subsequently restored the town, retaining only the port and castle of Mers-el-Kebir. In 1831 the French took possession of it.

ORANGE, a well known fruit produced by a tree of the natural order *aurantiaceæ*. This order is composed of trees or shrubs having dotted leaves; fragrant and handsome flowers, the calyx urceolate or campanulate, short, 3 to 5 toothed, withering; petals 3 to 5, broad at base; stamens equal in number to the petals, or twice as many, or some multiple of their number, inserted upon the same hypogynous disk; ovary free, many-celled; fruit pulpy, of one or more cells; seeds attached to the axis, one or many, without albumen; embryo straight; cotyledons thick and fleshy, and radicle very short. The genus *citrus*, to which the orange and lemon belong, is very subject to an unusual and abnormal growth of the carpels, which results in what are called horned and fingered fruits. The genus is almost entirely East Indian; the wood of the several species is hard and compact; their leaves abound in a volatile, fragrant, bitter, exciting oil; the pulp of the fruits is always more or less acid. Among the most remarkable products of the order are the citron, lemon, lime, pompelmoose, shaddock, and orange. The common sweet orange (*citrus aurantium*, Risso) is found upon the hillsides in the forests of the Himalaya, and in China. This species is extensively cultivated for its delicious fruit and for the purposes of commerce. It may be considered a small tree or shrub with an arborescent stem; ovate oblong, acute leaves, a little serrulated, with the petiole more or less winged; its flowers white; its fruit roundish, seldom pointed, occasionally mammose, many-celled, golden yellow or tawny, the pulp sweet, refrigerant, the rind smooth or smoothish, aromatic, and the oil cysts convex. The principal varieties of the common sweet orange are the China orange, with round, smooth, rather flattened fruit, and a thin golden rind; the orange of Nice, with large, thick-skinned, rough, dark yellow, round fruit (this is one of the finest in every respect); the St. Michael's orange, with small, round, pale yellow, seedless fruit, a thin rind, and extremely sweet pulp; the sweet-skinned orange, or "forbidden fruit" of the Paris shops, with a subacid and pleasant pulp, and a yellow, soft, and fleshy rind; the blood orange, with round, rough, reddish yellow fruit, and the pulp irregularly mottled with crimson; the mandarin orange, with flattened, rough, deep orange fruit, and thin rind, which separates spontaneously from the pulp (a kind in such esteem in China as to be employed for presents to the officers of state, whence its name); the ribbed orange, with a flattened, ribbed, deep yellow fruit, of little value; the pear-shaped orange, a rare and curious sort, with round, smooth, rather flattened fruit, and thin, golden rind; the fingered orange, its fruit ovate, with an occasional lobe or horn from the monstrous growth of a carpel; and the egg oranges of Malta. The Seville orange (*C. bigaradia*, Risso), or bitter orange, is a smaller tree with spiny branches, elliptical, acute leaves, winged petioles, snow-white flowers, middle-sized, roundish, smooth, or wrinkled fruits of a deep yellow color, and the oil cysts upon the rind concave. From this species the orange water of the perfumers is chiefly obtained; the flowers yield the oil of Neroli; the fruit, whose pulp is bitterish and acid, when crushed and boiled in sugar makes marmalade. There are numerous varieties of the bitter orange, some of which are cultivated exclusively for their flowers, which are large, showy, and fragrant. Of these is the curled-leaved bigarade, with flowers growing in thick clusters at the ends of the branches. This is the nosegay plant, or *le bouquetier* of the French gardeners, and is a common object of cultivation all over the south of Europe. The double-flowered bigarade is also a great favorite in gardens on account of its numerous fragrant flowers, which do not so readily fall to pieces as the single kinds do; the soil in which the plants are grown must be kept very rich, however, to secure the double flowering condition. The myrtle-leaved bigarade has a very dwarf habit, and when well cultivated its beauty is remarkable in the contemporaneous appearance of fruits and flowers; it is said to have originated in China, and to be there used instead of box for edgings to garden beds. The bizarre bigarade is a singular variety with purplish white flowers, and different shaped and different flavored fruits, being of that class of freaks or sports in vegetation which are observable in other plants, and which require care in propagation to preserve them. The bergamot orange (*C. Bergamia*, Risso) is a tree rather variable in its appearance; its branches are brittle; its leaves are oblong, dark green above, but paler beneath; its flowers small, white, very sweet smelling; its fruit pear-shaped, smooth, pale yellow, oil cysts of the rind concave, pulp subacid and very fragrant. From the fruit and flowers of this species is procured the oil of bergamot; the rind retains its perfume for a long time after it has dried; it is pressed into moulds to form little boxes to contain sweetmeats and lozenges. A variety with ribbed fruit having a broad scar on its summit is the *mellarosa* of the Italians, and is much esteemed on account of the abundance of its flowers.—In cultivation, the common sweet orange is raised from seeds, cuttings, layers, grafts, and buds. When reared from the seed, usually many years are requisite to bring it into bearing, though cramping the roots in small pots and feeding highly with manure may hasten the period of fruiting. The usual mode is therefore by grafting upon seedling stocks; and the bitter orange, being a stronger grower, is employed to graft upon. The lemon tree is also used, and the slit method of grafting pursued with success. Well developed axillary buds inserted in young seedlings, whenever their bark readily peels, do equally well. Planted in the border of the conservatory, the orange tree flourishes, but the usual mode in colder countries is by planting it in tubs or in large wooden boxes. In the vicinity of Florence in Italy, the Seville or bitter orange does well in the open air; and trees of it in the gardens are resplendent in the month of January for their green leaves and golden fruits. The sweet orange trees, however, are not exposed to the frost, but are artificially protected in various ways in the winter months. The usual mode of growing them is in large earthen pots, which are preferable to tubs or wooden boxes; and the branches are suffered to spring from the crown of the roots so that the form of each plant may be that of a bush, which is more beautiful as well as natural. Loudon informs us that the orange was introduced into England in 1595 and grown against walls, and for many years bore fruit. In that country the cultivation of both the orange and the lemon has been successful by the same process revived, after it had fallen into disuse; and in Paris the same has been effected by standard trees in the open air, enclosing them with double glass cases about the month of September, and covering the outer lights with mats in the severest weather. After the wood has perfectly ripened, continued darkness for a considerable period does not seem to be injurious to the tree. The beauty of orange blossoms, employed in making up winter bouquets and for bridal wreaths, renders the cultivation of the orange tree desirable, especially in the northern states, and the greenhouses and conservatories there contain many varieties. A warm, rich, and well drained soil seems best fitted for successful growth, and upon these the perfume and juiciness of the fruit and healthy vigor of the foliage depend. The largest supplies of oranges in commerce come from S. Europe, China, the Azores, and the West Indies. In the United States the orange has been successfully cultivated in Florida; and the orange, lemon, and lime are commonly cultivated in the warmer parts of the southern states, while the bitter sweet orange (*C. vulgaris*, Risso) is completely naturalized in some parts of South Florida.—The importation of oranges into the United States during the year ending June 30, 1859, amounted to $644,683, of which $542,642 worth were from the Two Sicilies, and the rest chiefly from the West Indies and the Pacific islands.

ORANGE, the name of counties in 7 of the United States. I. An E. co. of Vt., bordering on N. H., from which it is separated by the Connecticut river, and watered by various small streams; area, about 650 sq. m.; pop. in 1850, 27,296. It has an uneven surface, and toward the N. is mountainous, the eastern range of the Green mountains crossing the N. W. part; the soil is moderately fertile. It contains great quantities of iron ore and granite and some lead ore. The productions in 1850 were 176,586 bushels of Indian corn, 52,822 of wheat, 169,587 of oats, 599,925 of potatoes, 70,549 tons of hay, 248,715 lbs. of wool, and 869,042 of butter. There were 2 woollen factories, 2 founderies, 4 flour, 2 paper, and 13 saw mills, 11 tanneries, 3 newspaper offices, 64 churches, and 9,212 pupils attending public schools. The Connecticut and Passumpsic rivers railroad traverses the eastern margin, and the Vermont central crosses the S. W. corner. Capital, Chelsea. II. A S. E. co. of N. Y., bordered S. W. by N. J. and E. by the Hudson river, and drained by the Wallkill and Shawangunk rivers; area, 838 sq. m.; pop. in 1860, 63,814. The Shawangunk mountains cross the N. W. corner, and a range of precipitous bluffs, having an elevation of from 1,000 to 1,500 feet and known as the highlands, are toward the S. E. on the Hudson river. The remainder of the surface is chiefly rolling upland. It is noted for its excellent grazing and fine dairy produce, nearly half the improved land being in pasture. The productions in 1855 were 43,395 bushels of wheat, 357,490 of Indian corn, 291,111 of oats, 202,301 of rye, 123,551 of potatoes, 103,211 tons of hay, 3,285,587 lbs. of butter, and 80,660 of cheese. The milk sold amounted to 4,553,514 galls. There were 4 cotton factories, 8 paper mills, 8 woollen factories, 21 saw mills, 38 grist mills, 12 tanneries, 112 churches, and 21,575 pupils attending public schools. The New York and Erie railroad passes through the county, Goshen, one of the capitals, being on the line, and the other capital, Newburg, connected with it by a branch. III. An E. co. of Va., bounded N. W. by the Rapidan and drained by branches of the North Anna river; area, about 250 sq. m.; pop. in 1850, 10,067, of whom 5,921 were slaves. Its surface is somewhat hilly, and the soil generally fertile. The productions in 1850 were 121,825 bushels of wheat, 267,140 of Indian corn, 30,750 of oats, 1,881 tons of hay, 174,700 lbs. of tobacco, 21,509 of wool, and 54,814 of butter. There were 23 grist mills, 16 saw mills, 5 tanneries, 1 woollen factory, 9 churches, and 253 pupils attending public schools. The value of real estate in 1856 was $2,748,666, showing an increase of 85 per cent. since 1850. The Orange and Alexandria railroad intersects the county, passing through the capital, Orange Court House. IV. A N. co. of N. C., watered by the head waters of the Neuse and several small streams; area, about 700 sq. m.; pop. in 1850, 17,053, of whom 5,244 were slaves. It has an undulating surface and fertile soil. The productions in 1850 were 98,388 bushels of wheat, 459,066 of Indian corn, 106,840 of oats, 2,305 bales of cotton, and 194,275 lbs. of tobacco. There were 5 grist mills, 2 saw mills, 4 tanneries, 2 newspaper offices, 29 churches, and [illegible] pupils attending public schools. The North Carolina railroad intersects the county, passing through the capital, Hillsborough. V. A central co. of the peninsula of Fla., bounded E. by the St. John's river; area estimated at 2,000 sq. m.; pop. in 1850 (since which it has been reduced by the formation of other counties), 466, of whom 226 were slaves. It has a level surface covered with extensive pine forests and savannas, with many small lakes and swamps interspersed. Capital, Mellonville. VI. A S. E. co. of Texas, separated from Louisiana on the E. by the Sabine river, and bounded S. and W. by the Neches, which meets the former at Sabine lake on the S. E. corner; area, 850 sq. m.; pop. in 1858, 1,277, of whom [illegible] were slaves. It has a nearly level surface, about half of which is covered by a heavy growth of timber, principally pine and cypress, and a portion is wet land well adapted to the cultivation of rice. Stock is raised for the New Orleans market, and there is some trade with Galveston. Capital, Madison. VII. A S. co. of Ind., drained by Patoka and Lost rivers and Salt creek; area estimated at 400 sq. m.; pop. in 1860, 12,000. Its surface is hilly in the S. and undulating toward the N., and the soil is generally fertile. The productions in 1850 were 46,941 bushels of wheat, 484,165 of Indian corn, 96,849 of oats, 2,298 tons of hay, and 38,761 lbs. of wool. There were 14 grist mills, 2 saw mills, 5 tanneries, 25 churches, and [illegible] pupils attending public schools. Capital, Paoli.

ORANGE, Principality of, formerly an independent seigniory, 12 m. in length by 9 in breadth, in the S. E. of France, now included in the department of Vaucluse. Its origin is traced back to the 9th century, and it was held in succession by 4 houses: 1, that of Giraud-Adhemar, which became extinct in 1174, and a member of which, Count Raimbault (Rimbaldo), figures among the heroes of Tasso's "Jerusalem Delivered;" 2, that of Baux (1185–[illegible]); 3, that of Châlons, which ended in 1530 with the celebrated Philibert, one of the greatest warriors of the age; 4, that of Nassau-Dillenburg, which acquired full possession in [illegible] and kept it until the death of William III., king of England, without issue (1702). Many competitors claimed the vacant estate, Frederic I. of Prussia and Prince John William Friso of Nassau-Dietz being the foremost. Each of the several pretenders assumed the title of prince of Orange; but after a protracted contest the principality was ceded to France by the treaty of Utrecht, and has since been a part of that country. The princes of Nassau-Dietz nevertheless were allowed to style themselves princes of Orange, and since their accession to the throne of Holland that title is given to the heir apparent to the crown.

ORANGE, Maurice of. See Maurice.

ORANGE RIVER Republic. See Boers.

ORANGEBURG, a central district of S. C., bounded E. by the Santee, N. E. by the Congaree, and S. W. by the South Edisto, and intersected by the North Edisto; area, 1,488 sq. m.; pop. in 1850, 23,582, of whom 15,884 were slaves; white pop. in 1859, 7,812. It has a diversified surface and a soil of moderate fertility. Extensive pine forests yield large quantities of lumber and turpentine. The productions in 1850 were 10,024 bales of cotton, 614,418 bushels of corn, 189,915 of sweet potatoes, 7,299 of oats, and 1,299,379 lbs. of rice. There were 67 grist mills, 37 saw and planing mills, 66 churches, and 628 pupils attending public schools. The South Carolina railroad crosses the southern corner of the district, and the Columbia branch railroad passes through the capital, Orangeburg.

ORANGEMEN, a secret political society of the British empire, whose official designation in its own records is "The Loyal Orange Institution." It is composed exclusively of Protestants, and its professed objects are to support and defend the reigning king or queen of Great Britain, the Protestant religion, the laws of the country, the legislative union of Great Britain and Ireland, and the succession to the throne in the present royal family so long as it remains Protestant. They associate also in honor of King William III., prince of Orange, whose name they bear, "as supporters of his glorious memory." Members are admitted by ballot, and each applicant must receive at least $\frac{6}{7}$ of the votes cast. Every member must belong to a private or subordinate lodge, and can only be admitted on proof that he is a Protestant of known loyalty and over 18 years of age. Each member on admission pays an entrance fee, which in no case is less than 2*s.* 6*d.* The association is divided into five orders or degrees, the first of which is the orange, and the fifth and highest the scarlet degree. No one is eligible to the highest till he has been a member for 12 months. The officers of the lodge must be of the scarlet degree, and consist of a master, deputy master, secretary, treasurer, and 5 committee men, who hold office for one year. Meetings are commonly held once a month; the lodge is opened by prayer, after which a portion of Scripture is read, which is followed by the transaction of business, such as the baloting for candidates, admission of new members, and consideration of communications, the odge closing with a prayer. Any member marrying a Roman Catholic must be forthwith expelled. Three or more subordinate lodges constitute a district lodge, of which the officers are a district master, district deputy master, &c., bearing the same titles as the officers of the lower lodges with the prefix of "district." The district lodge meets 4 times in a year, and exercises a species of supervision over the lower lodges, which make regular reports to it. Next above the district lodges are the county grand lodges, whose officers, from grand master to grand committee, bear the titles already enumerated with the prefix of "grand," and are elected by the officers of the district lodges in the county. The county grand lodge meets twice a year. Finally there is in each of the three kingdoms of Great Britain and in Wales, and in the principal colonies, a grand lodge, which meets twice a year, and consists of the above mentioned "grand" officers, and of a grand committee elected by the officers of the county grand lodges. There is also an imperial grand lodge, at the head of which is the grand master of the empire, "who is its chief and supreme head. His office is permanent and uncontrolled, being confided wholly to the loyalty and integrity of that Orangeman who shall be worthy of so high a trust." The imperial grand lodge meets once a year, and is composed of the grand officers of the grand lodges of the kingdoms which compose the empire. A collateral order called the "Grand Black Order of Orangemen," or "Royal Black Knights of the Camp of Israel," exists within, but se[illegible]rate from, the Orange institution, to which no person is admitted who has not taken the higher degrees of the exterior society, or either of whose parents is or has been a Roman Catholic. No one can be a member who does not profess to believe in the holy Trinity. It is organized, like the Orange institution, into grand lodges, county, district, and subordinate lodges, which, however, are called chapters and preceptories, and the individual members bear the title of knights.—The Orange institution was founded in the north of Ireland in 1795, ostensibly to counteract the Roman Catholic secret associations called "the defenders" or "ribbon men." These two opposite associations were soon involved in fierce hostility with each other; and as nearly the whole peasantry of the country belonged to one or the other of the associations, all the inhabitants were in some districts arrayed under opposite banners, and were always ready for mutual conflict. Whenever the opposite factions met in any considerable numbers, insults were exchanged and riots often ensued. The law was powerless against them, because witnesses were intimidated, and jurymen sometimes refused to convict culprits belonging to their own order. In 1828 immense assemblages of the Orangemen and of the "Catholic association" were gathered tumultuously in the north of Ireland, and blood was shed in some places. In the following year the celebration by the Orangemen of the anniversary of the battle of the Boyne, July 12, led to bloody conflicts in the counties of

Clare, Armagh, and Fermanagh, in which considerable numbers were killed or wounded, and the interposition of the military with difficulty suppressed these disturbances. In 1835 a parliamentary investigation was ordered, which led to the detection of Orange lodges in 34 regiments of the army; and in the following year the imperial grand master, the duke of Cumberland, was compelled to dissolve the institution in Ireland. It was however revived in 1845, and is still extensively diffused in the British islands, though its processions are there forbidden by law. It was introduced into British America in 1829, and in 1861 it had 1,200 lodges and about 150,000 members. Its processions there are not illegal, and its political influence is very great. Much excitement was occasioned by the attempt in 1860 to compel the prince of Wales during his progress through the provinces to recognize the order and to pass under its arches and banners, a recognition steadfastly refused by the prince and his suite.

ORANG-OUTANG (*pithecus*, Geoffr., or *simia*, Linn. and Illig.), the common name of the large tailless anthropoid apes of S. E. Asia and the islands of Borneo and Sumatra. Some details have been given regarding the orangs under APE and CHIMPANZEE; and students desirous of pursuing the subject extensively are referred to the papers of Prof. Owen in the "Transactions of the Zoological Society of London" (vols. i. to iv., 1835–'56), and of Prof. Duvernoy in the *Archives du muséum d'histoire naturelle* (vol. viii., Paris, 1855). The orang usually seen in menageries is the *P. satyrus* (Geoffr.), of which the adult has been described as the *P. Wurmbii*, the pongo of authors and the *mias* of the natives of Borneo. The pongo or adult orang is more powerful and less anthropoid than the chimpanzee (*troglodytes niger*, Geoffr.); it represents in Asia the gorilla of Africa, and varies in height from 5 to 7 feet. The forehead is contracted, sloping directly backward, with no projecting superciliary ridges; the occiput is flattened, the canines large, jaws powerful, zygomatic arches strong and expanded, and cranial ridges largely developed; the crown is less flat than in the chimpanzee; the brain cavity of the adult is very little larger than at the period of the first permanent molars, the greater size of the cranium depending on a thickening of the walls and the development of the temporal ridges; the latter commence at the external angular process of the frontal bone, and pass upward, inward, and backward to meet at the junction of the sagittal and coronal sutures, the two including a smooth triangular portion of the frontal; the interparietal crest is about ½ inch high, as in the large carnivora, dividing at the vertex, and passing behind the lambdoidal suture to the mastoid ridge, and a rough prominence continues from the point of divarication half way down the occiput. As compared with the chimpanzee, it comes nearer man in the small portion of the wing of the sphenoid which reaches the parietal, separating the frontal from the temporal, though this character does not hold good in all races of men nor always in the orang; the occipital foramen is further back, and its condyles are nearer together in front, with double anterior condyloid foramina; from the greater development of the canines, the incisive foramina are further back; the intermaxillary sutures are not obliterated until the permanent teeth are almost fully developed; the single nasal bone is flat, with no projection beyond the nasal processes of the upper jaw; the inter-orbital space is relatively narrower; the upper jaw has 3 infra-orbital foramina instead of one, and is larger; the incisors project more obliquely forward; there is a greater height and breadth of the rami of the lower jaw, and greater depth of symphysis. The teeth are in number the same as in man, the chimpanzee, and gorilla, the incisors and canines especially being relatively larger. The spinous processes of the cervical vertebræ are simple and very long, for the muscular attachments rendered necessary by the backward position of the occipital foramen, the great development and weight of the face, and the general anterior inclination of the vertebræ themselves; the spinal column has one general curve behind from the atlas to the beginning of the sacrum, where there is a slight curve in the opposite direction; the dorsals are 12 as in man, the chimpanzee having 13; the lumbar are 4, with shorter spines; the sacrum consists of 5 bones, and is longer, narrower, and straighter than in the chimpanzee; the coccygeal bones are 3, anchylosed together but not to the sacrum. Continuing the comparison with the chimpanzee, the ilia are more expanded and flatter, and the ischia are less extended outward, making the lower part of the pelvis narrower; the superior pelvic opening is nearly a perfect oval; the chest is ample, as large as a man's, the transverse greater than the antero-posterior diameter; the ribs are narrower and less flattened; the sternum short and wide, composed, below the first bone, of a double series of 7 or 8 small bones, always distinguishable in the young animal, but not in the chimpanzee; the clavicles very little curved; the scapulæ broad and short. The principal difference is in the relative length of the upper and lower limbs; the arms reach to the heel; in the fore arm there is greater space between the bones, owing to the outward curve of the radius; the bones of the hand are elongated, those of the thumb slender and short, not reaching to the end of the metacarpal of the fore finger; proximal phalanges curved for easier prehension and climbing, and the last row not expanded for a wide sensitive bulb of a finger. The femur has no *ligamentum teres*, giving greater mobility and less solidity to the motions of the hip joint, useful in climbing, but rendering the gait on the ground awkward and shuffling; the bones of the leg are short, with greater space between them owing to the inward curve of the tibia; the foot is turned more inward, and the os calcis does not project so far back; the phalanges much elongated, the hind thumb not reaching to the condyle of the next metatarsal, resembling a hand more than a foot. The sutures are obliterated in the adults; the large canines of these anthropoid apes bear no relation to their food, being used principally as weapons of defence against the larger carnivora, which their great strength enables them to cope with; the smaller the species and the more easily concealed, the less developed are the canines. The capacity of the adult male orang skull is 26 cubic inches, of the female 24, considerably less than in the gorilla, and about the same as in the chimpanzee; in the young, up to the age of about 5 years, the facial angle is 60°; the extremities preserve the proportions of a 6 months' human fœtus, while in the chimpanzee they are those of a yearling infant. The numerous resemblances to the human structure which have served as arguments for progressive animal development have always been taken from immature specimens of these anthropoid apes, in which the facial angle, teeth, shape and relative size of cranium, assume human proportions, which are lost as the animal advances in age; the docility and gentleness of the young give place to obstinacy and ferocity in the old, as the cerebral development becomes relatively less.—The Bornean pongo has long loose hair of a deep fuscous color, approaching in some parts to black, the adult male having large dermal fatty protuberances over the cheek bones, not found in the Sumatran species; the younger specimens, both in Borneo and Sumatra, are more ruddy brown. In the immature specimens, which are the best known, the head is pear-shaped, expanding from the chin upward; the eyes close together; the external ears small; the nose confluent with the face, with nostrils but slightly elevated; mouth projecting, with large gape and very narrow ips; the abdomen protuberant; the hair on the fore arm reversed. They are fond of low marshy regions, well wooded, their whole organization being fitted for progression on trees; they seldom move far on the ground, and then on all fours or by swinging the body awkwardy forward between the arms supported by the bent knuckles; they build a kind of nest in rees, where they spend the night, leaving it ate in the morning when the sun has dispersed he dew and thoroughly warmed the air; they do not live in society, except when a pair have a family in charge; the food consists of fruits, nuts, tender plants, leaves, and shoots, and is ntirely vegetable in a state of nature; the natives say that they always attack and are ttacked by the crocodile (*C. biporcatus*). In aptivity the disposition is mild and affectionate, nd the deportment grave and often melanholy; the intelligence and powers of imitation re considerable; and they get to be fond of he varied food of man, and especially his rinks, as ardent spirits and coffee. For anecdotes of this species see Jardine's "Naturalist's Library," vol. i., and other popular works on natural history. The Sumatran orang has been described as a distinct species, as *P. Abelii* or *bicolor* (Geoffr.); it is of large size and of a reddish brown color. A smaller and more anthropoid species in Borneo has been named *P. morio* by Owen; it is about 4 feet high, and 6½ between the ends of the outstretched arms; the ridges of the skull are rudimentary, passing from the external angle of the frontal bone, slightly converging but not meeting, and behind the coronal suture soon subsiding to the level of the skull; the canines are smaller, and are related to differences in the cranium mentioned by Owen in the "Transactions of the Zoological Society" (vols. ii. and iv., 1836–'56); it may be, according to Owen, a now permanent, though dwarfed, variety of *P. satyrus.* If the pongo represents the gorilla in Asia, the *P. morio* would parallel the chimpanzee, and the *P. Abelii* the bald nshiego recently described by Mr. Du Chaillu.

ORATORIO (Lat. *oratorium*, a small chapel), a sacred musical composition consisting of airs, recitatives, duets, trios, choruses, &c., with full orchestral accompaniment. The subject is generally taken from Scripture, and the text, which is seldom dramatic in form, is sung and recited without action or any of the adjuncts of theatrical representation. The oratorio is frequently spoken of as a species of musical drama; but many of the most noted works of the class are in no sense dramatic, the text either conveying a simple narrative, or consisting merely of detached passages of Scripture, and in a few instances being of a mixed character, as in the "Creation" of Haydn. A musical drama on a sacred subject, like the *Mose in Egitto* of Rossini, is properly an opera. The term has also been somewhat loosely applied to a class of compositions not strictly of a religious character, of which Haydn's "Seasons," founded on Thomson's poem, affords an example. The oratorio was derived from the mystery or religious tragedy of the middle ages, of which it presents a modified form, adapted to the services of the church. Its origin has generally been ascribed to St. Philip Neri, who in 1540 founded the congregation of the Oratory in Rome (whence the term oratorio), one of the objects of which was to deter young people from profane amusements by rendering religious services as attractive as possible. "For this purpose they began by the introduction of canticles, and spiritual songs and choruses; and afterward, to increase the attraction, Scripture songs and incidents were formed into dramatic poems, written in dialogue, and set to music by the best composers of the time. These productions were recited and sung, with the accompaniment of instruments, before and after the sermon; so that the attention of the congregation was thus (it was presumed) secured to the religious instructions of the preacher." (Hogarth's "Memoirs of the Opera," vol. i. p.

5.) Oratorios, in the present signification of the term, were not however produced until about the middle of the 17th century. They speedily became popular in Italy, where they were regularly performed in churches during the carnival, and gradually became a recognized form of musical composition in many parts of Europe, the subjects in Roman Catholic countries being frequently taken from the lives of the Virgin or the saints. In Germany they have been cultivated by eminent composers from Bach down to Mendelssohn and Spohr; and in England for nearly a century and a half they have proved perhaps the most popular species of music extant. In the latter country all the great works of Handel, the most eminent composer of oratorios, including "Samson," "Israel in Egypt," "Saul," "Jephtha's Daughter," and the sublime "Messiah," were originally produced. In some of the cities of the United States the taste for this kind of music has been fostered by societies of long standing and repute, like the "Handel and Haydn Society" of Boston and the "Mendelssohn Union" of New York, which perform the choice works of the composers from whom they derive their titles. In Italy oratorios are still performed exclusively in churches; but in other countries they are frequently given in public halls, concert rooms, and even in theatres.

ORATORY, the art of public speaking, including the two departments of composition and elocution, the former aiming at a peculiar style of rhetorical excellence, and the latter at a pleasing and effective action and delivery. The art culminates in eloquence. The ancient rhetoricians distinguished eloquence as either demonstrative, deliberative, or judicial. The first was designed to offer praise or blame with reference to matters of the present time, and included funeral orations, invectives, panegyrics, inaugural addresses, &c.; the second exhorts or dissuades with reference to the future, and includes moral lectures and all instructive oratory; the third relates to accusation or defence of past conduct, and includes all pleading. These different styles were often united in the same oration. Modern eloquence has been distinguished as that of the senate, the bar, the pulpit, and the platform. Luther thus mentions the "properties and virtues" requisite for a good preacher: "First, he should teach systematically; secondly, he should have a ready wit; thirdly, he should be eloquent; fourthly, he should have a good voice; fifthly, a good memory; sixthly, he should know when to make an end; seventhly, he should make sure of his doctrine; eighthly, he should venture and engage body and blood, wealth and honor in the word; ninthly, he should suffer himself to be mocked and jeered of every one." The eloquence of the ancients, and especially of the Greeks, is usually believed to have greatly excelled modern oratory. Of the 10 Attic orators approved by the Alexandrian critics, nearly all lived in the 4th century B. C. The two greatest of these, Demosthenes and Æschines, were at the head of the two parties into which Attica was then divided, and were constantly opposed to each other. The former, accustomed to elaborate preparation by his early efforts to overcome natural deficiencies, never ventured to speak extemporaneously, or to trust to the impulse of the moment; and his orations are therefore models of artistic and effective arrangement. Dionysius, contrasting the effect of his speeches with that produced by Isocrates, says that the latter left the hearer in a contemplative mood, as if he had been listening to strains of the finest music, while the former inspired him with all the passions incident to humanity, and with an agitation so fierce as that which raged among the initiated during the celebration of the mystic rites of Cybele. The style of Demosthenes exhibits few attempts at philosophical reflection, few prominent ornaments, and has no pretension to wit or humor; and yet, says David Hume, "could it be copied, its success would be infallible over a modern assembly." Æschines excelled in improvised or extempore oratory, of which he was called the inventor. Among the Romans, Cicero and Hortensius were preeminent as orators, the style of the former lacking the simplicity of the Greeks, though less florid and Asiatic than that of his rival. In modern times the best examples of political oratory have been given in Great Britain and the United States. Mirabeau, Vergniaud, Lamartine, Kossuth, and other leaders in revolutionary epochs have alone rivalled the eloquence of legislative debates. Few of the speeches of the elder Pitt have been exactly reported, but enough remains to show that they have rarely been surpassed in majesty and effect. His power of extemporizing was the reward of a severe course of training at Oxford; and after entering parliament at the age of 26 he remained silent for nearly a year, carefully studying the character of the house. Throughout his public life, amid sickness and pain, he retained the passionate energy which prompted passages in his addresses that were almost irresistible. The two discussions in which his eloquence was chiefly displayed were those relating to the elections of Wilkes and to the American war. The younger Pitt was trained from childhood for his oratorical career; and while he lacked the earnestness and vivid imagination of his father, he was effective from his grasp of intellect, mastery of details, power of contemptuous sarcasm, and sonorous enunciation. The artless and vigorous speeches of Fox rank higher as specimens of oratory, though he affirmed that a speech which reads well must necessarily have been a bad one. He attributed his success as a debater to a resolution, which he formed when very young, to speak well or ill at least once every night. The failure of Burke to affect his hearers illustrates the saying of Demosthenes, that the chief excellence of oratory consists in action.

So ungraceful and frigid was his manner, and so unskilful was he in adapting his ideas to the capacities or humor of the audience, that he obtained the nickname of "the dinner bell," because his rising to speak was the signal for the audience to withdraw to dinner. Yet his speeches remain among the finest specimens of that class of literature. The speech of Sheridan n the impeachment of Warren Hastings was declared by Burke "the most splendid effort of eloquence, argument, and wit united, of which there was any record or tradition." All of Sheridan's speeches cost him excessive labor; even his jokes passed through successive editions on paper, and were subjected to long revision and condensation, and then kept in readiness for a fitting occasion. Before his greatest efforts, he was accustomed to retire nto the country and give himself up entirely to study. He not only elaborated his speeches to the minutest details, but for the most part committed them accurately to memory. Erskine, who had been a midshipman and soldier, achieved sudden eminence as an advocate; but his success was the result of long continued preparation in debating clubs. Canning, the most eminent of later British orators, is remarkable for practising skilful appeals to the magination in many beautiful and poetical pictures. His ingenuity in debating a delicate and hazardous question was displayed in his argument against parliamentary reform at the election dinner at Liverpool in 1818, in his speeches on the Catholic question, and on the projected invasion of Portugal by Spain in 1826. Lord Derby, Mr. Bright, and Mr. Gladstone are the most remarkable of living British orators.—In America, the statesmen who have been most reputed for eloquence are Patrick Henry, James Otis, Fisher Ames, Henry Clay, Daniel Webster, and Edward Everett. The nterests of citizenship under a popular government have made public speaking more common and animated in America than it has been perhaps since the republics of Greece and Rome.—In the early church the most brilliant preacher was Chrysostom, who had diligently studied the Greek orators. His homilies, though sometimes displaying gorgeous imagery, were eminently practical, consisting chiefly of simple denunciations of vice and commendations of virtue. Sermons were hen rarely read from manuscript, but were more frequently committed to memory. Chrysostom states that his subject was often suggested to him while on his way to the church. Clapping, shouting, and waving of kerchiefs, s tokens of applause, were then usual in hurches. The finest examples of pulpit elouence have probably been presented by the French preachers Bossuet, Bourdaloue, and Massillon. This department of oratory delined during the 18th century, but has been evived with eminent success by Lacordaire, nd Ravignan. In England, Whitefield, Chalmers, and Robert Hall have been most remarkable for power in the pulpit. Whitefield excited the highest interest not only of common people, but of court beauties and of free-thinkers like Chesterfield, Bolingbroke, and Hume. Hume said that it was worth while to walk 20 miles to hear him; and so cool and calculating a person as Dr. Franklin was prompted by one of his charity sermons, against his predetermination, to give all his coin. He is stated to have taken lessons of Garrick, and it is certain that his effect was chiefly due to his manner. His reputation would have been greater had he left no published sermons. Dr. Chalmers bestowed the severest labor upon his sermons. Eschewing all ornaments of style, preserving his broad provincial pronunciation, advancing gradually from a solemn and drawling tone, it was only when near the close that he rose to the full power of his eloquence. His power in passages is likened by those who heard him to that of a tempest; and on concluding there is said to have been invariably a deep sigh or gasp for breath audible through the entire audience. Robert Hall never delivered his sermons from manuscript, but either committed them to memory, or preached extemporaneously. His voice was weak and shrill, and he made it intense and effective by speaking rapidly. His published sermons have high literary merit. —See Maury, *Essai sur l'éloquence de la chaire* (Paris, 1810), and Hunt, "Philosophy of Voice and Speech" (London, 1859).

ORATORY, Priests of the. See Priests of the Oratory.

ORBIGNY, Alcide d', a French naturalist, born in Coueron, Loire-Inférieure, in 1802, died in Paris, June 30, 1857. He was educated at La Rochelle, and in 1824 attracted the attention of the scientific by a paper presented to the academy of sciences, in which he pointed out the existence of many creatures not previously observed. In 1826 he was sent by the government to South America, which he explored for 8 years, from Brazil and Peru to Patagonia. He collected many valuable historical MSS., 36 vocabularies of American languages, 7,000 species of animals, a large proportion of which were entirely new, and 2,500 species of plants. The results of his observations and labors were given to the public in his *Voyage dans l'Amérique du Sud* (7 vols. 4to., 1835–'52), which was printed under the auspices of the ministry of public instruction. He also published many other important works on natural history and on palæontology, to which his later years were particularly devoted, and on which he lectured in the museum of natural history from 1836 to 1858.

ORCAGNA, or Orgagna (Andrea di Cione), an Italian painter, sculptor, and architect, born in Florence in the early part of the 14th century, died in 1375 or 1389. He was the son of a Florentine sculptor and goldsmith named Cione, and is said to have acquired the surname of L'Archagnuolo (the archangel), which was contracted into Orcagna. He learned design under the tuition of his father, and was instructed in painting by an elder brother, Bernardo, who was a follower of Giotto, and in concert with whom he painted a series of frescoes in the Strozzi chapel in the church of Sta. Maria Novella at Florence. His most memorable productions in this art, however, are the series on the north wall of the Campo Santo at Pisa, executed probably about 1335, representing the "Triumph of Death," "The Last Judgment," and "Hell." These works have been greatly injured by time and neglect. They were profoundly studied by succeeding painters, and Michel Angelo and Raphael borrowed largely from the attitudes and arrangements of Orcagna. As a sculptor and architect Orcagna attained, according to Vasari, even greater eminence than as a painter. One of his most celebrated productions was the tabernacle of the Virgin in the church of San Michele at Florence, a pyramidal altar of white marble ornamented with sculptured figures, one of which represents the artist himself, and is inscribed with his name and the date, 1359. The church itself was also built from his designs; but his masterpiece in architecture was the Loggia de' Lanzi in the Piazza Granduca in Florence, of which Michel Angelo declared that he could produce nothing superior.

ORCHESTRA (Gr. ορχηστρα), that part of the Greek theatre in which the chorus performed its dances and evolutions. It was circular in shape, except that a segment was appropriated to the stage, extended in front of the spectators, and was surrounded by steps. In modern theatres the orchestra is the space between the audience and the stage allotted to the musicians; and in concert rooms it is a raised platform occupied by both vocal and instrumental performers. Previous to the commencement of the 18th century the instrumental performers in theatres were placed in a box on the side of the stage and out of view of the greater part of the audience; but their present position, both in respect of acoustic effects and of the opportunity which it affords the singers to have in view the conductor, is considered superior.—The term is more commonly applied perhaps to a body of instrumental performers in which the violin family predominates. A body of musicians using principally wind instruments is popularly called a band. The earliest example of the composition of an orchestra is afforded by Monteverde's opera of *Orfeo*, performed in 1604, in which 20 instruments of the violin species and 12 wind instruments are employed, chiefly to accompany the voice, although they were not all played at the same time. Subsequently the stringed instruments were increased in orchestras to the almost total exclusion of other kinds, and the works of Cavalli, Carissimi, and Lully are written principally for violins, violas of different degrees of power, base viols, and double base viols. Lully sometimes employed flutes, bassoons, and trombones; but it was not until after the time of Haydn's later works that the wind instruments, whether of brass or wood, began to be recognized as an important and indeed an indispensable part of the orchestra. At the present day they are used with splendid effect in military bands, and in the works of some composers encroach upon the limits of the stringed instruments, which should always be made the centre of the orchestra, and the point around which all the rest revolve. The smallest number of performers in a grand orchestra is estimated at 60, and the hall wherein they play should be of moderate size; but for the greatest effects 80 and upward must be employed. M. Fétis gives the following proportions for an orchestra and chorus of 356 performers, beside an organ of firstrate power:

Stringed.		*Wind and pulsatile.*		*Vocal.*	
First violins..	30	Flutes	4	Soprano.....	[illegible]
Second do.....	30	Oboes.........	4	Alto.........	[illegible]
Violas.........	25	Clarionets....	4	Tenor.	[illegible]
Violoncellos..	30	Bassoons	3	Base	[illegible]
Double bases.	20	Horns.........	6	Principals. .	6
		Trumpets	2		
		Trombones...	3		
		Bugles	5		
		Serpents......	2		
		Drums and cymbals....	3		
	135		48		173

ORCHIL. See Archil.

ORCHIS, the ancient name of an endogenous, gynandrous plant, with showy flowers and tuberous roots, found in various portions of the world, but sparingly represented in the United States. It belongs to the natural order of the *orchidaceæ*, which comprises many species, all herbaceous, and distinguished by their irregular blossoms, exhibiting singular appearances and grotesque forms. The several parts of the flower of *orchidaceæ* are: 1, the perianth, of 6 divisions, the 3 outer being sepals and the 3 inner petals, of which the upper is furnished with an appendage called the lip; 2, the column, which is usually composed of a single stamen growing into and uniting with the style, and bearing a 2-celled anther; 3, the ovary, which is firmly adherent to the tube of the calyx, and is often so twisted when the flower is about to expand that its back with the floral envelopes is turned to the front; 4, the fruit, a 1-celled, 3-valved pod, filled with very fine chaffy seeds. In the orchis, the flower is ringent; the sepals and petals nearly equal, all of them, or all but the 2 lower sepals, converging upward and arching over the column; the lip turned downward, coalescing with the base of the column, and spurred at the base underneath; the anther cells 2, contiguous and parallel; the pollinia or pollen masses 2, concealed in the hood of the style. Endlicher's division of the genus is into *androrchis* and *herorchis*. Of the European species of the former we have the *orchis mascula* of Linnæus, which grows in meadows, and has oblong, undivided roots, spotted leaves, flowers many, borne on a loose spike, sepals reflexed, lip 3-obed, the intermediate lobe emarginate, spur blunt, horizontal; another is the spotted orchis (*O. maculata*, Linn.), with palmate roots, potted leaves, a conical flower spike, recurved sepals, an acutely 3-lobed lip, and a slender pendulous spur. Of the latter division, *herorchis*, may be cited the helmet orchis (*O. morio*, Linn.), growing on dry hillsides, with globose roots, divisions of the perianth obtuse, connivng into the form of a helmet, lip large with 3 obtuse lobes, spur obtuse, cylindrical, ascendng, or horizontal.—Other allied genera bear he name of orchis, of which the bee orchis *ophrys apifera*, Linn.) is a plant a foot high with a few large and rather distant flowers on he spike; the sepals are whitish tinged with purple, the lip velvetty, brown variegated with yellow; it is a native of Great Britain, on chalky calcareous soils, and very handome, as well as singularly curious. The fly orchis (*O. muscifera*, Linn.) is a more slender plant with purplish flowers, the sepals green, he petals narrow, the lip of a purplish brown and peculiar in shape. The spider orchis (*O. araneifera*, Linn.) has greenish flowers, with a hairy dark brown lip, covered with pale or yellowish lines. In these and similar species he shape of the lip combined with the posiion of the floral organs gives rise to the trivial names, which convey the appearance that each lower presents. These several kinds are not uncommon in Europe.—The showy orchis (*orchis pectabilis*, Linn.) appears in May on the hills where there are rich woodlands, from northern New England to Kentucky; it is a conspicuous little plant, whose roots consist of thick leshy fibres, its leaves 2, ovate, shining, its lower stem 5-angled, with a few flowers havng pinkish-purple sepals and petals all arched or vaulted, and an ovate, undivided white lip. Other North American orchises are arranged under different genera established on account of some particular and diverse structure of the lower. Thus in *gymnadenia* of Robert Brown, he glands upon the stigma, which are covered n *orchis*, are bare, naked or exposed, as seen n the 3-toothed orchis (*G. tridentata*, Lindley), small, slender-stemmed plant, with fleshy, ibrous roots, a single, oblong, obtuse leaf, pike of 6 to 12 flowers, small flowers of a yellowish color, seen in wet woods of the northrn states; and in *G. flava* (Lind.), with an obong, cylindrical spike densely covered with range yellow flowers, appearing in July in he wet pine barrens of New Jersey, Virginia, nd at the south. The genus *platanthera* of Richard is founded upon the 2 naked glands eing widely separated and the anther cells iverging below. In this, of the species bearng a single leaf only, we have the dwarf rchis (*P. obtusata*, Lind.), with an obovate, btuse leaf, a spike loosely set with 5 to 10 owers, the upper sepal of the flower broad nd rounded, the petals bluntly triangular, the p linear, entire, bearing 2 small tubercles at base, and the spur curved. It is to be sought for in cold peat bogs and on high mountains from Maine to New York and Lake Superior. Of the species having a 2-leaved scape may be mentioned the large, round-leaved orchis (*P. orbiculata*, Lind.), with very large, orbicular leaves, which are spread flat upon the ground, the flowers spreading, greenish white in a loose raceme. It is a conspicuous plant in rich woodlands from New England to Wisconsin, and southward along the Alleghanies. The northern white orchis (*P. dilatata*, Lind.) represents a section of these plants which have leafy stems; it bears a wand-like spike of whitish flowers with linear, lanceolate petals. It is common at the northward in cold peat bogs, blossoming in June and July. There are several other species with leafy stems, such as the yellow fringed orchis (*P. ciliaris*, Lind.), having a short spike of showy flowers of a bright orange yellow, the petals linear, fringed at the apex, the lip oblong and furnished with a very long and capillary fringe; it is common at the south, and blooms in July and August. In the peat meadows at the north is found the exquisite white fringed orchis (*P. blephariglottis*, Lind.), with pure white flowers, the petals spatulate, slightly cut or toothed at the apices, the lip oblong with the margin irregularly fringed. The ragged orchis (*P. lacera*, Gray) is common by the roadsides of E. Massachusetts, and found in other parts of New England; its stem is about a foot high, bearing oblong lanceolate leaves, and terminating in a raceme of many pale yellowish green flowers, the lip jagged or torn into a few capillary lobes. The small purple fringed orchis (*P. psychodes*, Gray) has a stem 2 feet high furnished with several oblong leaves passing into linear bracts, and ending in a large spike of purple flowers with spreading petals, the two outer of which are fringed; it is common in meadows. The large purple fringed orchis (*P. fimbriata*, Lind.) is an elegant plant, which sometimes grows upward of 2 feet high, with a thick, angular, fistulous stem, oblong-oval, obtuse leaves, an oval-oblong many-flowered spike, petals of the flowers pale purple, the 2 inner ones cut or fringed on the whole of their sides. It occurs in abundance in some portions of New England. The great purple orchis (*P. peramœna*, Gray) has large, showy, violet-purple flowers, the lip paler and very ample, its divisicns toothed and cut but not fringed. It is a western and southern species, and grows in moist meadows.—When cultivated, the orchis will continue for a few years in the garden, but the finer sorts require more moisture than can be readily furnished. From the roots of several European species a nutritious article of diet called salep is obtained. Such species have each two tubers charged with nutritious matter, one of which feeds the flower stem of the current year, and the other is reserved by the plant for a similar use in the succeeding year. The latter is selected for the salep; the other, being nearly exhausted of its starch by the growth of the plant, is broken off and thrown away. After the selected tubers have been cleaned and peeled of their exterior brown skin, they are dried in an oven until they exchange their opaqueness for a semi-transparent, horn-like hue. When used, they are boiled in water or in milk to the required consistency, the result being a thick mucilaginous fluid much used as a drink by hard-working people; it is said to contain more nutriment in proportion to its bulk than any other known substance, its constituents being bassorine, gum, and starch. In Turkey and in Persia, where it is prepared from some particular species of orchis native to those countries, salep is held in high esteem; it is likewise a favorite food with pedestrian travellers in wild deserts and uninhabited regions. With this and a few other exceptions, the orchids in general are of little utility, though their beauty and graceful or singular structure are adapted to please the eye.

ORDEAL, an ancient form of trial, to determine, by a supposed reference to the judgment of God, the guilt or innocence of the accused. The word is derived from the Anglo-Saxon *ordal*, compounded, according to Spelman and Ducange, of *or*, great, and *dæl*, judgment; according to Lye and Bosworth, of *or*, without, and *dæl*, difference, signifying a judgment without distinction of persons. The ordeal usually went under the name of *judicium Dei* (judgment of God), or *vulgaris purgatio* (common purgation), to distinguish it from canonical purgation, in which the person cleared himself by oath. The earliest allusion we have in regard to this practice is found in the laws of Moses (Numbers v.), according to which the Hebrew woman suspected of adultery is to drink the "waters of jealousy," which if she is guilty will cause "her belly to swell and thigh to rot." There is, however, no case on record in Scripture in which this regulation was carried out. Grotius, in his commentary upon this chapter, mentions several instances of trial by water among the people of Bithynia, Sardinia, and other countries. Trial by ordeal seems certainly to have been known in Greece, as in the "Antigone" of Sophocles a sentinel who had failed in fulfilling a trust committed to his charge, is represented as declaring that he is ready to "handle hot iron and walk over fire" to prove his innocence; and this, the scholiast observes, was a usual method of purgation. In modern Europe, ordeals came early into common use, and occupy a prominent position in the history of its jurisprudence. They were of several kinds, of which the trials by fire and by water were most usual. "Fire ordeal," says Blackstone, "was performed either by taking up in the hand, unhurt, a piece of red-hot iron of one, two, or three pounds weight; or else by walking barefoot and blindfold over 9 red-hot ploughshares, laid lengthwise at unequal distances; and if the party escaped being hurt, he was adjudged innocent; but if it happened otherwise, as without collusion it generally did, he was then condemned as guilty." The trial by fire was the one commonly in use among the higher orders, and several instances are recorded in which noble females by means of it vindicated their claims to chastity; the mother of King Edward the Confessor is said in this manner to have established her reputation when suspected of a criminal intimacy with Alwyn, bishop of Winchester, but the story wants proof.—The trial by water, the origin of which is usually ascribed to Pope Eugenius II., was confined chiefly to the lower classes, and was of two kinds, that by boiling water and that by cold water. In the former, the individual thrust into a vessel of hot water his arm, which, when withdrawn, was bound up and sealed, and at the end of 3 days examined. If no trace of scald appeared, he was declared innocent. From this practice is derived the popular expression of being in hot water. In the cold water ordeal the individual was thrown into the water, and if he floated without swimming, he was considered guilty; but if he sank, he was deemed innocent and drawn out. A trace of this practice lasted until a late period in the case of persons suspected of witchcraft, in which the unhappy victim, with the right arm bound to the left leg and the left arm to the right leg, was cast into some pond, and if the body floated the charge was thought to be proved; if, on the other hand, it had the good fortune to be drowned, the innocence of the accused was clearly established. A terrible kind of water ordeal prevailed in Malabar, where the suspected criminal was obliged to swim across a large stream abounding in crocodiles. As, according to Blackstone, both the trial by fire and the trial by water could be performed by deputy, the principal answering for the result, and the deputy only venturing on some corporeal pain for hire or for friendship, language has preserved a relic of the practice in the expression "to go through fire and water to serve one."—The corsned, or trial by the hallowed bread and cheese, was chiefly practised by ecclesiastics. A morsel of bread or of cheese, loaded with imprecations, was given the accused to eat along with the eucharist; and if the person were guilty, it was believed he could not swallow it. It is said that in this manner was choked Godwin, earl of Kent, who had been charged with the murder of the brother of Edward the Confessor. A trace of the custom survived in certain phrases of abjuration, such as: "I will take the sacrament upon it," and "May this morsel be my last." The ordeal of the cross was of two kinds. In civil suits, the two contending parties held up their arms in the form of a cross, and the one who succeeded in maintaining this wearisome position the longer was declared victorious. In criminal cases, two blocks of wood were taken, on one of which was cut the figure of the cross. These were wrapped up in wool and laid either on the altar or on the relics of some saint. An attending priest took up one of these at hazard, and if it chanced to be the one with the cross engraved upon it, the accused was pronounced innocent; but if the other, guilty. The ordeal of the bier, which lasted even into the 18th century, was common in cases of murder, and existed from a very early period. The murdered man was laid upon a bier, and the suspected criminal was obliged to touch his body, and particularly the wound. If blood flowed, if foam appeared at the mouth, or if the body moved, the charge was deemed to be proved.—The ordeal of battle (see APPEAL), from which arose the modern duel, seems to have been unknown among the ancients, except by a Spanish tribe mentioned in Livy (xxviii. cap. 21) as accustomed in this manner to settle their civil suits, when they were unable or unwilling to find any other solution. It sprang up, however, at an early period in nearly every nation of modern Europe, and is spoken of in almost every collection of the barbarian laws, except in those of the Visigoths, whose jurisprudence followed to a great extent the Roman, and those of the Anglo-Saxons, although it prevailed among the Saxons and Jutes of Germany. William the Conqueror was the first to introduce it into England. Decretals were issued against this method of deciding disputes by Pope Alexander III. in 1179 and by Innocent III. in 1215, and Louis IX. abolished it in the ordinance of 1260. From this time the practice, though sanctioned several times by sovereigns, fell gradually into disuse. There were other forms of ordeal, chiefly local, such as the weighing of witches, practised in Prussia in the 17th and in the neighboring countries in the 18th century. If they were exceedingly light, they were declared guilty. As late as 1728 some witches were weighed at Szegedin in Hungary.—The practice of these ordeals sprang from a superstitious belief that a just God would interfere to punish the guilty, and perhaps also from the very necessities of an age of violence, which required for innocence every chance for safety, however slight. With such respect were they regarded that Eadmer, the contemporary historian of the reign of William Rufus, could express in no stronger language the depth of wickedness into which that monarch had sunk, than by saying that he disbelieved in "the judgments of God." Yet, although ordeals were performed upon consecrated ground, and though so late as the reign of King John the clergy of England had the privilege of using the *judicium ferri, aquæ, et ignis*, the church early and earnestly endeavored to do away with this monstrous perversion of judicial forms. Decretals were issued against the practice. The canon law pronounced it to be the work of the devil; and the increasing use of this and of the Roman law soon caused ordeals to fall into disfavor. The temporal power, moreover, came finally to the aid of the spiritual, and by the 16th century the practice with a few exceptions had been given up. According to Sir Edward Coke, it was abolished in England in the reign of Henry III. There is no doubt that there were artificial preparations for warding off the injurious effects of these trials, which, though well known to the clergy, were calculated to excite the wonder of the ignorant. Moreover, there was in the conduct of the proceedings much room for fraud, which unquestionably was liberally practised.—Ordeals were by no means confined to Europe, but seem to have been used among a large portion of the barbarous and partially civilized nations all over the globe. In Hindostan especially the system was thoroughly developed, as appears from a statement by Warren Hastings in the first volume of the "Asiatic Researches," in which the 9 following kinds of ordeal are enumerated: 1. Ordeal by the balance. In this the suspected person, after having fasted a whole day, was carefully weighed. The principal points of the accusation, written on a piece of paper, were then bound on his head, and he was again placed in the scales, where if he weighed more than before he was held to be guilty; if less, innocent; and if the same, the trial was repeated. 2. Ordeal by fire. An excavation was made in the ground 9 hands long, 2 spans broad, and one span deep, and was filled with fire of pippal wood. Upon this the accused walked barefooted, and if unhurt was adjudged to be guiltless. 3. Ordeal by water. In this the suspected criminal stood in water up to his navel, and near him a Brahmin with a staff in his hand. Three arrows being shot on the ground by a soldier, a man was despatched to bring back the furthest, and as soon as he had taken it up another was sent from the edge of the water for the remaining two. At that moment the accused, grasping the leg or staff of the Brahmin, was to dive into the water, and if he remained under until the two men returned, he was declared to be innocent. In the villages near Benares, he was obliged to remain under without raising his head until a man walked leisurely 50 paces. 4. Ordeal by poison. The supposed guilty party ate 7½ barleycorns of poison, mixed in 192 barleycorns of clarified butter; and if the preparation produced no visible effect, he was declared to be innocent. According to another method, a hooded snake was placed in a deep earthen pot, and the accused took out with his hand a ring, seal, or coin dropped into it; if bitten, he was considered guilty; if not, innocent. 5. Ordeal by the *cishe*. In this the accused drank 3 draughts of water, in which images of the sun, of Devi, and of other deities had been washed for this purpose; and if within 14 days he became unwell, he was deemed a criminal. 6. Ordeal by rice. In case of theft, some dry rice was weighed with the sacred stone, called *salgram*, or certain *slocas* were read over it. Of this the suspected persons were to chew a quantity, and then throw it out upon leaves of pippal, and if it came out of the mouth of any one dry or stained with blood, that one was held to be guilty and the rest were acquitted. 7. Ordeal by hot oil; and 8, ordeal by hot iron. These were very much the same as the hot water and hot iron ordeals of Europe. 9. The ordeal by images. In this a silver image called Dharma, the genius of justice, and a clay or iron one called Adharma, were thrown together into an earthen jar, and the accused was convicted or acquitted according as he brought out the former or the latter; or the figure of one deity was painted on white cloth, and that of the other upon black, and these were rolled up in the excrement of cows in separate balls, and cast into a vessel, after which the procedure was the same as in the previous instance.—Ordeals of various kinds, but chiefly the trials by fire and by water, are found among the Chinese, the natives of Pegu, of Congo, of the coast of Guinea, and the tribes of Asiatic Russia. In Senegambia an application of red-hot iron is made to the tongue of the supposed criminal. In Siam the accuser and the accused were placed together in one spot, and a tiger was let loose upon them. If one was spared, he was considered innocent; if both were destroyed, they were both deemed guilty; and if both were spared, they were compelled to undergo some more certain test. The missionary Krapf, in his "Travels and Researches in Eastern Africa," mentions, as in use among the Wanaka tribe, the ordeals of the hatchet, of the copper kettle, of the needle, and of the piece of bread. The first two were analogous to the hot iron ordeal and the last to the corsned of Europe. In the ordeal of the needle, a red-hot needle was drawn through the lips of the alleged criminal, and if blood flowed from the wound, he was deemed guilty; but if none, innocent.—In Madagascar the trial by ordeal is still generally practised by legal authority. The supposed criminal is made to drink a decoction of a poisonous fruit called the *tangena*, a small dose of which acts as an emetic, while a large dose is fatal. By managing the size of the dose, those who administer it can decide the result.

ORDERICUS VITALIS, an English priest and chronicler, born at Attingesham, near Shrewsbury (now Atcham, Shropshire), Feb. 17, 1075, died about 1143. He early entered the monastery of St. Evroult at Ouche in Normandy, where he passed most of his life. He wrote an "Ecclesiastical History of England and Normandy," which begins with the time of Christ and concludes with the year 1141. It was first printed in Duchesne's *Historiæ Normannorum Scriptores* (1619), and there is a good English translation by T. Forester, forming 4 vols. of Bohn's "Antiquarian Library."

ORDERS, Religious. See Religious Orders, and Monachism.

ORDINARY (Roman law, *judex ordinarius*), in its proper sense, or that which it bore in the Roman law, a judge who took cognizance of causes in the regular course and proper right of his office, and not by way of special deputation. This acceptation of the word is very exactly preserved in the ecclesiastical law, though in books of the common law the bishop who is the ordinary in England is familiarly referred to as "one who has ordinary jurisdiction in causes ecclesiastical." The bishop of each diocese is the ordinary therein. In virtue of his office he certifies excommunications, the lawfulness of marriages, and the like ecclesiastical and spiritual matters, to the courts of common law. Formerly, and until the statute 8 Elizabeth, c. 4, under claim of the benefit of clergy, he asserted an exclusive jurisdiction over his clerks. But the particular and most prominent judicial function of the ordinary consisted in his grant of probate of wills and letters testamentary. Of these matters the bishops, or, in certain cases, the archbishops, had for many centuries, and until very recently, exclusive jurisdiction. It has been much discussed whether the probate of wills and the granting of administrations were matters entirely and originally of ecclesiastical cognizance. It is now the better opinion that they were not, but that they belonged to the county courts, or to the courts baron of the lords of manors. Certainly these courts existed and wills were made before an ecclesiastical jurisdiction was established. After that was done, and until the time of the conquest, the bishop sat with the earl in the county court. The spiritual and temporal courts were separated in the time of William I., but it is not clear to which of the two the cognizance of wills was intrusted. But Spelman asserts, mainly on the authority of Glanvil, that in the times of Henry I. and Henry II. testamentary causes were regularly heard in the ecclesiastical courts. Since that time the probate jurisdiction of all the dioceses has been in the bishops' or archbishops' courts; and from it the forms and method of probate jurisdiction were borrowed in the United States, with more or less change. Now, however, by the "probate act" of 20 and 21 Victoria (1857), and by an additional act of the next year, the whole of the probate jurisdiction of England is taken from the ordinary, and vested in a court of probate, consisting of one judge, who may also be judge of admiralty, and who exercises this jurisdiction over all parts of England. These statutes provide for the manner of its exercise, and adopt all existing usages and rules, with as little change as possible; even the subordinate officers are expressly retained by name, and their duties and official names are, for the most part, quite unaffected.—In the United States the officer to whom probate of wills is committed is called in some judge of probate, in others ordinary register, or surrogate. (See Probate.)

ORDINATION, the act of conferring holy orders, or of initiating a person into the ministry of religion, or setting him apart for performing ecclesiastical rites and duties. All the Christian denominations which have a special ministry use some kind of ordination, but their opinions greatly differ respecting the authority by which it is conferred, its essence, and ts effect. The Roman Catholic, the eastern (Greek, Armenian, Nestorian, and Jacobite), and the Protestant Episcopal churches agree in maintaining that ordination is a prerogative of the bishops. The Roman Catholic and the eastern churches, and the "High Church" party of the Protestant Episcopal church, deny he validity of the orders, and even the existence, of a church where there is no bishop. The Presbyterian churches, on the contrary, hold that the presbytery have authority for his purpose, and that bishops and presbyters are in Scripture the same, and not distinct orders or officers. Among the Wesleyan Methodists, the ordination of their ministry takes place in the annual conference, with a president at its head and without the imposition of hands. Among the Calvinistic Methodists, ordination s performed by the sanction and assistance of heir own ministers. Among the Independents and Baptists, the power of ordination lies in the congregation, which tries the qualifications of he candidate, and gives him a call to be its minister. This call being accepted, ministerial brethren of standing assemble to examine his credentials and to inquire as to his religious and moral character and his theological views; and should all these prove satisfactory, they ordain him by prayer and laying on of hands. The society of Friends reject, together with a pecial ministerial office, all ceremonies of ordination for those who speak in their meetings, believing that the qualifications for the minisry of the gospel are the special gift of the great Head of the church, bestowed both upon men and women, without distinction of rank, alent, or learning, and must be received from him through the revelation of his spirit in the heart.—As to the qualifications required in a candidate for ordination, all denominations seek previously to ascertain his moral and religious character and the conformity of his theological views with those of the denomination or the particular church which he is to serve. Some churches have specified more prerequisites. In he church of England, and the other Protesant Episcopal churches which agree with it n doctrine and church government, a candidate must be 23 years of age before he can be ordained deacon, and full 24 before he can be ordained priest. He is also obliged to subscribe o the 39 articles. The council of Trent appointed that no one should be ordained save hose who were provided with a benefice; and his practice still obtains in the church of Engand. The times of ordination are the 4 Sundays immediately following the Ember week; . *e.*, the 2d Sunday in Lent, Trinity Sunday, and the Sundays following the first Wednesday fter Sept. 14 and Dec. 13. These are the tated times, but the bishops have the right, f circumstances make it desirable, to ordain candidates at any time. In the Roman Catholic church the ordination for the 4 lower orders may be bestowed in exceptional cases by priests, but that for the 3 higher orders (subdeacon, deacon, and priest) is reserved to the bishop. The Roman Catholic church makes the validity of an ordination dependent on the apostolic succession of the ordaining bishops; she rejects therefore the ordination not only of the Swedish and Danish, but also of the Anglican church, on the ground that the latter has not proved the apostolic succession of her bishops. The ordination of the Greek and the other eastern churches is not regarded as invalid, but only as illicit, as is the ordination by any bishop who is not in communion with the pope.—As to the essence of ordination, the Roman Catholic and the eastern churches regard it as one of the 7 sacraments, while in the opinion of the Protestant churches it is only a rite for setting apart a minister for his ecclesiastical duties. In the Protestant Episcopal and the Lutheran churches, the essence of the ordination has however been and is still a subject of controversy, as divines have not been wanting who have maintained the objective communication of divine power by means of the ordination. According to the Roman Catholic doctrine, ordination impresses on the ordained minister an indelible character, separating him for ever from the laity, while in the Protestant churches it only initiates him into the ministerial office. Some distinguished Protestant divines have therefore maintained, that the right of ordination should be repeated whenever a minister is called to another charge.

ORDNANCE, a term applied to all sorts of large guns used in war. (See ARTILLERY, and CANNON.)

OREADS. See NYMPHS.

OREGON, a state of the American Union, the 20th admitted under the federal constitution, bordering on the Pacific ocean, between lat. 42° and 46° N., and long. 116° 40′ and 124° 25′ W. Its N. boundary is the Columbia river, separating it from Washington territory, for a distance of about 300 m. from its mouth to its intersection with lat. 46° N., which it follows eastward about 70 m. to the Snake river or Lewis fork of the Columbia, and that stream is the boundary to the mouth of the Owyhee river; the line continues thence due S. to lat. 42°, and thence due W. to the ocean. Oregon is about 320 m. long from E. to W. and 280 m. wide from N. to S. Its area is about 80,000 sq. m. It contains 19 organized counties, viz.: Benton, Clackamas, Clatsop, Columbia, Coose, Curry, Douglas, Jackson, Josephine, Lane, Linn, Marion, Multnomah, Polk, Tillamook, Umpqua, Washington, Wasco, and Yamhill. All these counties save Wasco are W. of the Cascade mountains, and within 100 m. of the Pacific, the E. part of the state having very few white inhabitants, and those confined to the immediate vicinity of the Columbia river. The largest town in the state is

Portland (pop. in 1860, 2,700). It is the chief seaport, situated on the W. bank of the Willamette river, 10 m. from its mouth, which is 100 m. by the course of the Columbia from the ocean. The town site is a plain about 30 feet above the level of the river, and it is surrounded by dense forests of tall spruce, fir, and other evergreen trees. The town dates from 1847. The houses are nearly all of wood. The next town of importance is Salem, the capital (pop. 1,500), on the E. bank of the Willamette river, about 40 m. S. from Portland by the course of the river. It contains the state capitol and a woollen mill. Corvallis (pop. 1,000) is 20 m. further S., on the W. bank of the same river. This place was once selected by the territorial legislature to be the capital, but the federal government had appropriated money to build a capitol at Salem, and would not recognize any other. Eugene City (pop. 800) is 30 m. S. of Corvallis, also on the bank of the Willamette river. Other towns in the Willamette valley are Oregon City, Lafayette, Dayton, Santiam, and Albany. Oregon City, 9 m. S. of Portland, at the falls of the Willamette, has a great water power, and will be a manufacturing town of importance; but now the little power used is mostly spent in sawing rough lumber. On the bank of the Columbia are the towns of Astoria, Rainier, St. Helen's, and the Dalles. Astoria (pop. 400) is 9 m. from the ocean, at a point where the river is 3 or 4 m. wide. It possesses a custom house and a couple of saw mills. All the country E., S. E., and S. from Astoria is hilly, covered with dense timber, and almost uninhabited. This fact, and the fact that nearly all the import and export trade of the state is done at Portland, whither the ocean steamers run regularly, scarcely stopping at Astoria save to take on or put off a pilot, may account for the small size of Astoria, which was for a time looked upon as one of the most promising towns of the coast. St. Helen's, 10 m. below the mouth of the Willamette (pop. about 400), once aspired to be the chief port of the state, and the agents of the Pacific mail steamship company, provoked at the difficulty of ascending the Willamette to Portland in seasons of low water, established their coaling depot and office at St. Helen's; but the mercantile interest of Portland was too strong, and St. Helen's lost her trade and her hope. "The Dalles," or Dalles, so named from some rapids in the Columbia river, to which the Canadians employed by the Hudson's bay company gave that name (pop. about 1,500), is a thriving town on the S. bank of the Columbia, about 175 m. from its mouth. The town owes its importance to the rapids in the river, which at this point has a descent of 40 feet, thus interrupting the navigation and requiring goods to be transported by land for a distance of 6 or 8 m. The growth of the place must keep pace with the development of the basin of the upper Columbia, all the trade of which must go down the river. In the valley of the Umpqua river are the towns of Winchester, Roseburg, Scottsburg, and Gardner. In the auriferous portion of the valley of Rogue river are Jacksonville (pop. 1,500) and Althouse, the two principal mining towns in the state. On the coast, about lat. 43° 20′, is the village of Randolph, whose inhabitants are mainly engaged in the business of beach mining.—The population of Oregon, according to the census of 1860, was as follows:

Counties.	Whites.	Colored.	Total.
Benton	3,064	10	[illegible]
Clackamas	3,465	1	[illegible]
Clatsop	496	2	[illegible]
Columbia	[illegible]	..	[illegible]
Coose	[illegible]	..	[illegible]
Curry	[illegible]	..	[illegible]
Douglas	3,256	9	[illegible]
Jackson	[illegible]	43	[illegible]
Josephine	1,618	4	[illegible]
Lane	4,779	1	[illegible]
Linn	6,763	7	[illegible]
Marion	7,073	15	[illegible]
Multnomah	4,134	16	[illegible]
Polk	[illegible]	1	[illegible]
Tillamook	95	..	[illegible]
Umpqua	1,247	3	[illegible]
Wasco	[illegible]	9	[illegible]
Washington	[illegible]	..	[illegible]
Yamhill	3,244	1	[illegible]
Total	[illegible]	[illegible]	[illegible]

There are about 2,000 Chinamen, of whom the great majority are working in the gold placers. There is no accurate report of the number of Indians, but they are estimated at 10,000. The Rogue river, the Coose, the Chetco, the Umpqua, the Tillamook, the Klamath, and the Chinook tribes, though numerous 15 years ago, have now been reduced to a few scattered representatives. East of the Cascade mountains are a few Cayuses, Pah-Utes, and Snakes.—The principal rivers of Oregon are the Columbia and Snake rivers, which do not at any point come within its limits, but only form part of its northern boundary; the Willamette, Fall river (which drains a large and desolate region E. of the Cascade mountains), the John Day's, Umatilla, Grande Ronde, Powder, Burnt, Malheur, and Owyhee rivers, all tributaries of the Columbia and Snake rivers; and the Rogue and Umpqua rivers, large streams which fall into the ocean between lat. 42° and 44° N. Smaller streams emptying into the Pacific are the Coose, Coquille, Siusclair, and Tillamook rivers. The Columbia is navigable 96 m. from its mouth for vessels drawing 16 feet of water. The river where it opens to the sea is 4 m. wide, and that width continues for 18 m. inland. Off the mouth is a bar with 18 feet of water at low tide. The channel is narrow and crooked, the bar is difficult, the winds are frequently high, and fogs common; and the entrance is considered dangerous by mariners and insurance companies. Inside, the navigation is excellent, the river being wide and the water deep. At the Cascades, [illegible] m. from the ocean, the Columbia falls 40 feet in 5 m., interrupting navigation; and 60 m. further up there is another similar interruption by a all of 40 feet at the Dalles. The Willamette s navigable for vessels drawing 12 feet from ts mouth to Portland; thence to the falls at Oregon City for vessels drawing 6 feet; thence o Salem for vessels drawing 4 feet; and from Salem light steamers can run to Eugene City during a portion of the year. The Columbia, though not straight, has no short turns, whereas the Willamette, meandering through a flat valey, has a multitude of small crooks, with numerous sloughs and arms. Snake river is probably navigable, but no steamers have been placed upon it. The ports of Oregon, beside those on the Columbia river, are Port Orford, Coose bay, Umpqua river, and Tillamook bay. Port Orford, in lat. 42° 25′, is safe during the summer, that is, while the N. winds blow, but s open to the S. and is insecure during the winter months. The harbor is deep and of good size, and has a good anchorage. Coose bay, in lat. 43° 30′, has an entrance about ¼ of a mile wide, with 10 feet of water on the bar at low tide. Inside, the water is deep and the anchorage perfectly secure. Port Orford and Coose bay rarely have any vessels at anchor in their waters. The Umpqua river, in lat. 43° 45′, has an entrance about ⅓ m. wide, and 15 feet water at low tide. Inside, the water is deeper and the anchorage safe. This and Portland are the only two ports of Oregon regularly visted by ocean steamers. In lat. 45° 45′ is False Tillamook bay, which is nearly round, ¾ m. in diameter, with an entrance ¼ m. wide, opening o the S. The harbor is secure against all winds save those from the S. There are no slands off the coast of Oregon. The principal akes are the Upper Klamath lake, the Lower Klamath lake, part of which is in California, nd several smaller lakes or sinks of rivers in hat portion of the great basin lying within he limits of Oregon. All these lakes are in istricts where the soil is poor and the vegetation scanty.—There are two principal mountain ranges in Oregon, both running N. and S., the Coast and the Cascade chains. The Coast mountains, lying along the coast from lat. 42° o the Columbia, vary from 2,000 to 4,000 feet igh; they are covered with evergreen trees. The Cascade mountains, forming a portion of he high range running from lat. 55° to 35°, nd known as the Sierra Nevada in California, re from 4,000 to 10,000 feet high, with occaonal peaks rising still higher. This range on s W. slope is covered with coniferous trees; much of its E. slope is bare. The principal peaks are Mt. Hood, in lat. 45° 20′, 13,000 feet igh; Mt. Jefferson, in lat. 44° 40′, 11,000 et; the Three Sisters, in lat. 44° 10′, 11,000 et; and Mt. Pitt, in lat. 42° 25′, 10,000 feet. ll these rise into the region of perpetual now, and all of them are extinct volcanoes. ow long they have been extinct is not known, ut the Indians have traditions of a time when t. Hood was an active volcano. Other mounain ranges are the Blue ridge, W. of the wyhee river; the Siskiyou ridge, between Oregon and California; the Umpqua mountains, between the Umpqua and Rogue rivers; and the Calapooya mountains, between the valleys of the Umpqua and Willamette rivers.—Nearly all the tillable land in the state is in the valley of the Willamette, a body of land about 120 m. long from N. to S. by 30 m. wide. The soil is a gravelly clay near the mountains, covered with a rich sandy loam along the banks of the streams. In the valleys of the Umpqua and Rogue rivers, about 40 m. from the ocean, there are tracts of similar soil, each about 40 m. long by 20 wide, speaking in general terms. These rivers, when approaching the Pacific, run through steep mountains covered with timber so dense that cultivation is not now thought of. The low land along the banks of the Columbia is so narrow that it scarcely deserves to be taken into consideration in an examination of the agricultural district of Oregon. Fall river has a large basin, but the most of the soil is rocky and desert-like, the elevation high above the sea, the climate dry and cold. There is some good soil in the valleys of the Umatilla, Grande Ronde river, and Burnt river. South of the valley of Fall river lies part of the great basin, which sends no water to the sea, but swallows up all its own streams. Several such streams sink into the sands within the limits of Oregon. The soil is barren and verdureless.—The geological character of Oregon is marked by the predominance of tertiary sandstone in the west, granite in the Cascade mountains, and trap and other eruptive rocks in the E. part of the state. The valley of the Willamette has a deep diluvium strongly resembling that on the shores of Puget sound and in the Sacramento basin, and the resemblance suggests the idea that these valleys are of the same origin and were once connected together, though now separated by the Siskiyou, Umpqua, Calapooya, and Cowlitz mountains. In the Cascade mountains, beside the granite, are found trap, serpentine, porphyry, slate, quartz, and lava, the latter evidently poured out by the great volcanoes which now stand as silent snow peaks. Gold has been found in quantities sufficient to reward miners for their work in the valley of Rogue river and on the ocean beach from the S. boundary to near the Umpqua river. It has also been found in many other places E. and W. of the Cascade mountains, but not in diggings that would pay. It is rumored that valuable silver mines have been discovered in the valley of the Santiam. Copper has been found in the Calapooya mountains, and iron in the Coast mountains near Portland; platinum, iridium, and osmium are found in considerable quantities in the gold placers of southern Oregon; and large beds of tertiary coal lie on the shores of Coose bay.—Western Oregon has a moist, equable climate; eastern Oregon, one dry and variable. In the Willamette valley there are no great extremes of heat and cold. The average temperature of the spring is 54°

F., of the summer 70°, of the autumn 54°, and of the winter 40°. The amount of rain is very great; the sun is often hidden for more than a month at a time. Drizzling rains and thick mists prevail during a large portion of the year. Thunder, lightning, hail, and snow are rare. Ice seldom forms more than a couple of inches in thickness, and soon thaws. The heat of summer is never oppressive. At Astoria the fall of rain is still greater, measuring 86 inches annually, more than in any other place in the American Union. The Cascade mountains cut off the eastern division of the state from the coast winds, fogs, and rains, and this, in conjunction with the high elevation, renders that part of the country hot in summer and very cold in winter, the thermometer in July ranging as high as 80°, and in the winter falling below 20°.—The eastern part of Oregon is very poor in vegetation, the western very rich. In the valleys of the Fall and Snake rivers, a man may travel for days without passing a tree; in the valleys of the Willamette, Umpqua, and Rogue rivers he is never out of sight of dense forests. Nearly all the trees are coniferous evergreens. Among these, the most prominent are the Douglas spruce or red fir (*abies Douglasii*), the yellow fir (*A. grandis*), Williamson's spruce (*A. Williamsonii*), the Oregon cedar (*thuja gigantea*), the noble fir (*picea nobilis*), the western balsam fir (*P. grandis*), the sugar pine (*pinus Lambertiana*), the western yellow pine (*P. contorta*), and the fragrant white cedar (*cupressus fragrans*). These are all trees of magnificent size and beautiful form, standing in dense forests, and some of them rising to a height of 250 and even 300 feet, with trunks from 4 to 10 feet in diameter. Less striking and important are the western yew (*taxus brevifolia*), the western juniper (*juniperus occidentalis*), the Oregon oak (*quercus Garryana*), the Oregon alder (*alnus Oregona*), and the Oregon ash (*fraxinus Oregona*). The forests of Oregon are filled with a dense and tangled undergrowth, in which ferns and bushes bearing berries and thorns are numerous. The greater part of the level land of the Willamette valley and part of the Umpqua and Rogue river valleys are prairie land; that is, they are not covered with trees. East of the Cascades the vegetation is not only far more scanty, but it is entirely different in character. The trees are scattered, stunted, and twisted, the grass is thin, and almost the only bush is the wild sage or *artemisia*, one of the most cheerless and worthless of all plants.—The principal indigenous quadrupeds of Oregon are the grisly bear, black bear, American panther (*felis concolor*), the wild cat, the gray wolf, the coyote (*canis latrans*), the mountain sheep, the elk, the black-tailed deer, and the antelope. The most prominent birds are the Californian vulture (*cathartes Californianus*), the turkey buzzard, the golden eagle, the bald eagle, the fish hawk, the trumpeter swan (*cygnus buccinator*), the American swan, the Canada goose, the snow goose, the brant, 4 species of albatross, 3 of pelicans, and 7 of gulls. Of reptiles there are none deserving special mention, save the rattlesnake, which is not abundant. The rivers of Oregon abound in salmon at the proper seasons; there are about a dozen different varieties, and all of them when they first enter the fresh water from the ocean are delicious. Most of the animals and vegetables found in Oregon are indigenous to that coast, and are not found elsewhere. This remark extends to the fish and the birds as well as to the quadrupeds and the trees.—The most remarkable natural curiosities of Oregon are the rapids of the Columbia river at the Cascades and the Dalles, the falls of the Willamette at Oregon City, the high snow peaks of the Cascade range, the glaciers of Mts. Hood and Jefferson, large beds of lava on the slopes of the Cascade mountains in various places, numerous hot springs along the E. base of the Cascade mountains, and the sinking rivers of the great basin.—Agriculture is the chief occupation of the people. The main agricultural products are wheat, oats, potatoes, and apples. The climate is too moist and cool for maize, peaches, melons, and sweet potatoes. A great obstacle in the way of the farmer in Oregon is the fern, which grows in nearly all fields. There is one woollen mill at Salem, the only large manufacturing establishment in the state. There are saw mills to saw all the timber required for home consumption, and grist mills to grind all the grain.—Oregon has little foreign commerce, and that little is nearly all done by steamers with San Francisco and Victoria, British Columbia. Some goods are sent to British Columbia by land up the valley of the Columbia river. The chief exports of domestic produce are wheat, flour, apples, cattle, pickled salmon, eggs, butter, and chickens. The entrance of the Columbia river is so dangerous for sailing vessels, and the price of coal is so high on this coast, that freight to and from Oregon must always be expensive. Two of the most notable roads in the state are the stage road from Portland S. to Yreka in California, and the road across the Cascade mountains from Portland to the Dalles.—Oregon has no railroad or canal. There is no federal fortification, arsenal, navy yard, or hospital in the state. There are small military stations occupied by federal troops at the Dalles, Yamhill, and in Rogue river and Umpqua valleys. The state has few public institutions. The difficulty and expense of getting agricultural produce to market, the Indian war of 1855, and the refusal of the federal government to pay the war debt, have had a strong influence to prevent the growth of the state in population and wealth, and to delay the establishment of prominent public institutions. There are 2 colleges, [illegible] academies, and about 300 common schools. There is a common school fund consisting of the proceeds of lands granted to the state for that purpose, all escheats, forfeitures, money paid as exemption from military duty, all gifts and devises for common school purposes, the proceeds of the 500,000 acre grant, the 5 per cent. net proceeds of the sales of public lands, &c., the interest of the fund to be divided among the counties in shares proportioned to the number of children in each between 4 and 20 years of age. The governor, secretary of state, and state treasurer compose the board of school commissioners. There was n the treasury, Sept. 10, 1860, to the credit of the common school fund, the sum of $11,584, beside a university fund of $5,794. The leadng religious denominations are the Methodist church North, the Methodist church South, and the Baptist, which have churches in nearly every town. The Roman Catholics, Presbyterians, and Episcopalians have also some churches. Two daily newspapers and half a dozen weeklies are published in Portand; and Oregon City, the Dalles, Salem, Corvallis, Eugene City, and Jacksonville have each one weekly newspaper.—The government of Oregon is exercised by a governor (salary $1,500), a secretary of state ($1,500), and treasurer of state ($800), who are chosen by a plurality of votes for 4 years. During the first 5 years under the constitution of 1857 the governor is *ex officio* superintendent of public instruction; after 1862 a separate superintendent may be elected. The secretary of state is *ex officio* auditor of public accounts. The governor, secretary of state, and treasurer are eligible for reëlection for any number of terms, though not for more than two successively. A state printer is chosen by popular vote for 4 years. The legislature is composed of two branches, a senate of 16 members and a house of 34 representatives. Senators are chosen in single districts for 4 years, one half every second year, and representatives for 2 years. Their numbers may be increased, but are never to exceed 30 senators and 60 representatives. Members of each house receive $3 a day and $3 for every 20 miles of travel, but it is provided that the *per diem* of no member shall exceed $120. The sessions are biennial. Extra sessions may be called for any period not exceeding 20 days. The judiciary comprises a chief justice and 3 associate justices of the supreme court (salary $2,000 each), who are chosen in districts for 6 years, the oldest or the one having the shortest time to serve being chief justice; their number may be increased, provided it do not exceed 5 until the white population of the state is over 100,000, and never exceed 7. The supreme court is only a tribunal of appeals. Each justice holds a circuit court with both original and appellate jurisdiction, the terms being so arranged that a court shall sit twice a year in each county. Whenever the population of the state exceeds 500,000, the legislature is empowered to provide for the election of supreme and circuit judges in distinct classes. Inferior judges, who also act as judges of probate and county commissioners, are chosen in each county for 4 years. Sheriffs and clerks of courts are elected in every county, and district attorneys by districts. The revenue of the state for the year ending Sept. 10, 1860, including a balance of $4,556.26 remaining from the previous year, was $72,122.12, and the expenditure for the same period was $71,062.16, leaving a balance of $1,059.96. There is no public debt, and the state has no power to lend its credit or contract obligations to a greater amount than $50,000, except to repel invasion or for certain other specified objects. No county shall incur any debt over $5,000, with the like exceptions. No bank or moneyed institution shall be incorporated, nor shall any such exist with power to circulate paper money. Corporations may be formed under general laws, but shall not be created by special acts, and the stockholders shall be individually liable to the amount of their stock subscribed and unpaid, and no more. The amount of taxable property in 1858 was $22,824,118, and in 1859 $24,181,669; amount of state tax in 1858, $23,754; in 1859, $49,868. Estimated expenditures for the next two years, $61,700.—The name of Oregon was long applied to all the territory claimed by the United States on the Pacific coast, extending from lat. 42° to 54° 40′ N. In 1846, by treaty with Great Britain, the United States abandoned all claim to the country N. of lat. 49°, and the name of Oregon was by so much restricted. In 1853 the name was further restricted to the land S. of the Columbia river and lat. 46°, by the act creating the territory of Washington N. of that line. In 1859 Oregon suffered another reduction, nearly one third of its extent as a territory having been cut off from its E. end when it was admitted into the Union as a state, when the district between the Owyhee river and the Rocky mountains was added to Washington territory.—The coast of Oregon was seen by various navigators in the 17th and 18th centuries; but its history as known to civilized man may be said to commence with the discovery of the Columbia river by Capt. Robert Gray, who entered its mouth in the American ship Columbia from Boston, May 7, 1792, and gave the name of his vessel to the river. On his return to the United States he made so favorable a report of the majestic river of the west, that statesmen became desirous to secure it and its valley for the Union. This desire led the administration of Jefferson to send an exploring expedition under the command of Captains Lewis and Clark across the continent in 1804 and 1805. The expedition was successful, and while it collected much valuable information about extensive districts previously almost unknown to civilized man, it gave the Americans an additional title to the country. In 1808 the Missouri fur company sent trappers and traders to Oregon. In 1811 the American fur company, of which John Jacob Astor was the leading member, established a trading post at the mouth of the Columbia river, and called it Astoria; but it was very soon sold to the north-west fur company to save it from being taken during the war. The north-west and the Hudson's bay company, both British associations, for a while separate and afterward united, engaged in trapping and trading, kept many trappers and traders in Oregon until within a very brief period, for it was only in 1860 that their trading post at Fort Vancouver on the Columbia, nearly opposite the mouth of the Willamette, was abandoned. The Hudson's bay company employed many Canadians among its trappers, and these formed for a long time the main body of the white population. Most of them took Indian wives and were the fathers of numerous half-breed children. Great Britain claimed all of Oregon until 1846, when the boundary treaty was made with the United States. In 1839 the emigration of Americans commenced overland by way of the South pass, and there were a few emigrants every year until 1845, when several hundred went, and the next year there were several thousand; in 1847 and 1848 there were a few hundred, and in 1849 perhaps 1,000 again. In 1848, '49, and '50, however, Oregon lost many of her citizens by the gold excitement in California; but in the last named year she gained again from California in consequence of the passage of the "donation law" by congress, giving without cost 320 acres of public land to every person settled on such land before Dec. 1 of that year, and 320 acres more to his wife; and to those persons who should settle between Dec. 1, 1850, and Dec. 1, 1853, 160 acres to each man and 160 to his wife. Under this law 8,000 claims were registered in Oregon. It was a condition of these grants that the settler should reside on the land for 4 years. The donation induced nearly all the inhabitants of Oregon to remain, and led many of the young men to marry. As the men much exceeded the women in number, girls even as young as 14 years were in great demand; and for several years after the "donation law" went into effect the territory had a wonderfully large proportion of very juvenile wives and mothers. Oregon was formally organized as a territory on Aug. 14, 1848, previous to which time there had been a provisional government with the capital at Oregon City. On March 2, 1853, the territory of Washington was established out of the northern half of Oregon. In the summer of 1857 a constitutional convention was held, and drafted a state constitution, which was submitted to popular vote on Nov. 9, 1857. With the constitution were submitted the questions whether slavery should be legalized in the state, and whether free negroes should be permitted to reside in it. The result was favorable to the constitution, and against slavery and free negroes. On Feb. 14, 1859, the state was admitted by act of congress under the constitution adopted in 1857. Oregon has been troubled with many Indian wars. From 1848, when the disturbances began, until the present time, there has always been a hostile feeling between the whites and the red men. The hostility most of the time did not amount to an open warfare, but simply led to the shooting down of a man or two occasionally. A state of affairs very similar to this still continues in the eastern part of Oregon. Neither red nor white man is safe alone while persons of the other color are near. In 1855 the hostility broke out into a general war, which lasted more than a year, and led to a multitude of skirmishes and many deaths, but no serious battle was fought. In 1858 there was another war, but it was confined to the eastern portion of Oregon and Washington, and little damage was done by it to the industry, trade, or white population of either territory. The gold mines of the Rogue river valley in southern Oregon were discovered in 1851, but were not much worked previous to 1853.

OREGON, a S. co. of Mo. bordering on Ark., drained by Eleven Points and Spring rivers, tributaries of the Big Black river; area, about 1,650 sq. m.; pop. in 1856, 3,405, of whom 19 were slaves. It has an undulating surface and fertile soil. The productions in 1850 were 69,201 bushels of Indian corn, 2,257 of wheat, 5,512 of oats, and 2,019 lbs. of wool. There were 2 saw mills, 1 tannery, 4 churches, and 86 pupils attending public schools. Capital, Thomasville.

OREGON RIVER. See COLUMBIA RIVER.

OREL, ORIEL, ORELI, or ORLIK, a river of Russia, tributary to the Dnieper. It rises in the S. part of the government of Kharkov near Efremovskaia, flows S. W., forms part of the frontier of the government of Ekaterinoslav, separating it from that of Pultowa, passes Alexopol, and finally joins the Dnieper on its left bank after a total course of about 135 m., 35 m. W. N. W. from Ekaterinoslav. Its waters are sluggish and muddy.

OREL, a central government of European Russia, bounded by the governments of Kalooga, Toola, Tambov, Voronej, Koorsk, Tchernigov, and Smolensk; area, 18,253 sq. m.; pop. in 1856, 1,445,900. The principal rivers are the Desna, a tributary of the Dnieper; the Oka, which rises in the N. portion of Orel, and runs through the centre of the government toward the Volga; and the Sorna in the E., which flows to the Don. Limestone, sandstone, and alabaster are abundant, and iron ore is found. The climate is mild and healthy; grain, hemp, flax, and tobacco are raised. The extent of arable land is estimated at 2,599,206 acres, and about ¼ of the surface is covered with forests. Beet root sugar and coarse linen and woollen cloths are manufactured.—OREL, the capital, is situated at the junction of the Oka and Orel, 201 m. S. S. W. from Moscow; pop. in 1851, 25,630. It has direct water communication with the Baltic, Black, and Caspian seas, and carries on a large trade with all the countries bordering on those seas, and also with St. Petersburg and Moscow.

ORELLANA, Francisco, a Spanish adventurer, born in Truxillo about the beginning of the 16th century, died on a voyage across the Atlantic in 1549. He accompanied Francisco Pizarro to Peru in 1531, and took part in the conquest of that country by the Spaniards. When in 1540 Gonzalo Pizarro set out to explore the regions east of the Andes, Orellana was second in command of the expedition, which comprised 350 Spaniards, 4,000 Indians, and 1,000 dogs for hunting down the natives. After a tedious and perilous march across the Andes the army discovered the Napo, one of he upper affluents of the Amazon. Pizarro, despairing of returning by the route he had raversed, spent two months in constructing a brigantine large enough to hold the weaker part of his company and his baggage, and gave he command of the vessel to Orellana, with nstructions to keep alongside of the army while it followed by land the course of the unknown stream. After several weeks passed in he descent through a dreary wilderness, their provisions were entirely exhausted, and Pizarro, hearing of a populous and rich district at the distance of several days' journey down the river at the point where the Napo flowed into a still greater stream, despatched Orellana and 50 soldiers in the brigantine with orders to proceed to the confluence of the waters, procure a supply of provisions, and return to the relief of the starving army. Borne swiftly down the current of the Napo, the brigantine n 3 days reached the Amazon, then for the irst time navigated by a European vessel. Orellana found the country a wilderness, and altogether unlike what had been represented; o far from being able to procure supplies for he army, he could barely obtain sustenance for his own party. To return against the current was difficult if not impossible, and in this dilemma he resolved to embark at once on the great river before him and follow its course to he sea. His comrades were easily persuaded o this enterprise, and Orellana apparently with ittle hesitation abandoned his commander and et out on his voyage, which he boldly prosecuted for 7 months amid almost incredible dangers and privations. Many times his vessel was nearly dashed to pieces in the rapids of he river, and he was in still greater peril from he warlike tribes on its borders, who attacked him whenever he attempted to land, and often pursued him for miles in their canoes. He reached the ocean in Aug. 1541, and sailed to he island of Cubagua, and thence to Spain, where he excited great wonder and admiration by relating that he had passed through a country inhabited only by women who were wariors and conquerors, and that he had received uthentic information of the existence of an El Dorado where gold was so plentiful that houses were roofed with it. He obtained from the Spanish crown a commission to conquer and colonize the region he had discovered, and after some years he organized an expedition for the purpose, but died on his voyage to the mouth of the Amazon. That river is supposed to have received its name from his tale of the Amazons on its banks, and has sometimes been called from him the Orellana.

ORENBURG, a government of Russia, situated partly in Europe and partly in Asia, bounded by Perm, Tobolsk, the Kirghis steppes, the Caspian sea, Astrakhan, Saratov, Simbirsk, Kasan, and Viatka; area, 146,986 sq. m.; pop. in 1856, including the Cossacks of the Ural, 1,919,590. The province is of very irregular shape, and the chain of the Ural mountains traverses it from N. to S. The surface is greatly diversified. In the S. it is a steppe, but on the European side of the mountains it is undulating, varied, and picturesque; while toward the N. on the Asiatic side there is an extensive plain, with numerous swamps and small lakes. The drainage of the E. part of the province flows toward the Arctic ocean by the Tobol, Abuga, Ooi, and Miyas; and that of the W. portion to the Caspian sea through the Bielaya, Samara, and other tributaries of the Volga, and the Or, Sakmara, and Ilek, flowing into the Ural, which here forms the boundary between Europe and Asia. The range of the thermometer is very great, the heat in summer being excessive, while in winter the cold is intense. Gold, copper, iron, and salt are mined. A very extensive trade is carried on with the tribes of the Kirghis and the people of Bokhara, in metals, grain, horses, cattle, sheep, leather, furs, tallow, salt, and fish. The inhabitants are chiefly Russians, but there are considerable numbers of Tartars. There are several district schools in the government of Orenburg, and a young ladies' seminary was established in 1859 by voluntary contribution in its capital, Ufa.—Orenburg, a town of the above government, on the river Ural, 465 m. N. E. from Astrakhan; pop. about 16,000. The streets are broad but badly paved, and the houses are principally constructed of wood. There are several churches, 2 mosques, and an agricultural and a military school. The manufactures are chiefly coarse woollen cloth and leather. Upon the left bank of the Ural, about 2 m. from Orenburg, there is a caravansary where the annual caravans from Bokhara and Khiva stop, and where different productions of S. E. Asia are exchanged for cattle and the produce of the surrounding country. In the neighborhood there are extensive tallow-boiling establishments. The extension of Russian territory into the interior of Asia, consequent upon the voluntary submission of several Kirghis tribes in 1731, led to the foundation of this city, which became the centre of the administration of the new territory. It is now the chief military station on the frontier, and the focus of the Russian trade with central Asia.

ORESTES, a Greek legendary hero, son of Agamemnon and Clytemnestra, and brother of Clysothemis, Electra, and Iphigenia. He is represented as the avenger of his father, and the deliverer of his sister, through the murder of his mother. He was the theme of the tragic poets, who enlarged and embellished the simple Homeric narrative. Thus they said that at the time of the murder of Agamemnon it was intended to despatch Orestes, but his sister Electra saved him, and intrusted him to a slave, who carried the boy to Strophius, king in Phocis. In his house Orestes lived, together with Pylades, the king's son, and between the youths there sprang up a friendship which has become proverbial. Being frequently importuned by his sister Electra, and instructed by the Delphian oracle, to avenge his father's death, he repaired in secret to Argos, pretending that he brought the tidings of Orestes' death, at which Clytemnestra was overjoyed. With the complicity of Electra, he killed Clytemnestra and her paramour Ægisthus, but immediately afterward became mad, and was driven by the Furies from land to land, until by the advice of Apollo he took refuge with Minerva in Athens. The goddess commanded that his case should be decided by the court of the areopagus; and when they were equally divided, she pronounced him innocent. According to another legend, Apollo directed him to go to Tauris in Scythia, and bring to Athens the statue of Diana which had fallen from heaven. Orestes and Pylades sailed for Tauris, and on their arrival were seized by the natives in order to be sacrificed to Diana, according to the custom of the country. But the priestess of Diana was Iphigenia, Orestes' sister, and on their mutual recognition all three escaped with the statue of the goddess. The Furies were now appeased. Orestes ruled over his father's kingdom at Mycenæ, afterward became king of Argos, and married Hermione, the daughter of Menelaus. He died of the bite of a snake in Arcadia, and was buried in Sparta. According to another legend he was buried in Aricia, whence his bones were afterward carried to Rome. The history of Orestes is the subject of several celebrated dramas by Æschylus, Sophocles, and Euripides.

OREUS. See Histiæa.

ORFILA, Mateo José Bonaventura, a French physician, of Spanish parentage, the founder of the science of toxicology, born in Port Mahon, Minorca, April 24, 1787, died in Paris, March 12, 1853. His father was a merchant in rather moderate circumstances; and designing his son for the same pursuit, he sent him on a trading expedition to Sicily and the coast of Africa. Young Orfila, however, manifested so strong a predilection for the study of medicine, that his father sent him successively to Valencia and Barcelona, where he so much distinguished himself that the junta of Barcelona resolved to defray the cost of his further education in Paris, on condition that he should return to Barcelona as a professor in their medical school. He arrived in Paris, July 11, 1807. Young, handsome, and genial in his disposition, he made many friends and gained general good will. The outbreak of the Spanish war soon deprived him of his pension, and rendered him liable to be expelled from France; but an uncle at Marseilles supplied him with the necessary funds; and Vauquelin, the chemist, claiming him as his pupil, obtained permission for him to stay in Paris unmolested. At the end of 4 years (Oct. 27, 1811) he was graduated, and immediately became a private lecturer on chemistry in the French capital, where large audiences crowded around him. The first edition of his great work, *Traité des poisons, ou toxicologie générale*, appeared in 1813, and attracted considerable attention. On the establishment of peace in 1814, he signified his readiness to fulfil his part of the agreement made with the authorities of Barcelona; but the city declined the offer, as it could not afford to pay his salary. He now made application to become a French citizen, married (July, 1815) Mlle. Gabrielle Lesueur, daughter of a sculptor of some repute, and was elected corresponding member of the academy of sciences. On the occasion of a short visit to Minorca in the beginning of 1816, he was received with great honors. On his return to Paris, he was nominated, through the influence of Decazes, a physician to Louis XVIII. In 1819, having received his first letters of naturalization, he was appointed professor of medical jurisprudence in the faculty of medicine; in 1823 he succeeded Vauquelin as professor of chemistry; and in 1831, on the resignation of Antoine Dubois, he was made dean of that faculty, an office of both honor and responsibility. He was now in the full tide of prosperity; his public lectures were as popular as ever; his works ranked as masterpieces; his drawing room was the rendezvous of the choicest society, and admission to his musical evening parties was eagerly sought for. He was scarcely less accomplished as a singer than as a man of science. In 1832 he was chosen a member of the general council of hospitals in Paris; subsequently a member of the general council of the department of the Seine; and in 1834 one of the council of public instruction. He now received his letters of full naturalization, and had hopes of being promoted to a peerage, in which, however, he was disappointed. His authority as a scientific man had also reached its zenith; as a toxicologist he was without a rival, and the evidence which he was called upon to give on numerous murder trials, especially on that of Mme. Lafarge, and in 1850 on that of the count of Bocarmé, for poisoning, served greatly to increase his reputation. In his official capacity he also effected several important improvements, which materially enhanced the progress of medical students by new facilities being afforded for demonstration and study; he organized the clinical hospital, established a new botanical garden, the museum of pathological anatomy styled *musée Dupuytren*, founded under the will of that illustrious surgeon, and a gallery of comparative anatomy, to which his own name has been given. Under his administration, the service in the public hospitals was rendered more efficient, while the range of studies in the various schools of medicine was improved or elevated and enlarged. He was the founder of a provident association (*société de prévoyance*) among the physicians of Paris, of which he was elected the first president. On the revolution of 1848 he lost all his distinctions, except his professorship. In 1851 he was elected president of the academy of medicine, and in his will he left to that society and to 6 other public institutions the sum of 121,000 francs to establish prizes and for other useful purposes. Perhaps the most original of his works, and that upon which his fame mainly rests, is his *Traité de toxicologie*, which was successively enlarged and improved until the 5th edition, which appeared in 1852, in 2 vols. 8vo. Of this, an English physician says: "It is a vast mine of experimental observation on the symptoms of poisoning of all kinds, on the appearances which poisons leave in the dead body, on their physiological action, and on the means of detecting them. . . . Few branches of science so important in their bearings on every day life, and so difficult of investigation, can be said to have been created and raised at once to a state of high advancement by the labors of a single man." His other publications, which are also considered standard works in their line, are *Éléments de chimie appliquée à la médecine* (1817; 8th ed., 2 vols. 8vo., 1851); and *Traité des exhumations juridiques* (2 vols. 8vo., 1831), which was afterward merged into the *Traité de médecine légale* (1823–'5; 4th ed., 3 vols. 8vo., 1848). Valuable papers from his pen, chiefly on subjects connected with medical jurisprudence, are to be found in the medical journals; among the number are his *Recherches sur l'empoisonnement par l'acide arsénieux.* He left personal memoirs which have not yet been published.

ORGAN (Gr. *οργανον*, Lat. *organum*, an instrument), a name at the present time applied to several musical instruments that are in construction and principle somewhat closely allied; but more distinctively appropriated to the largest of these, the church organ, which may be briefly described as a wind instrument, the sounds of which are those of a great number of pipes of varying lengths, and are produced by the admission to these (as determined by the keys and stops moved by the performer) of compressed air conveyed to them along certain channels, from a bellows worked by human or other motive power. This, which from its essential feature of construction is also named the pipe organ, and from the mode of playing the finger organ, is incomparably the noblest and most imposing of musical instruments, being in majesty of tone and grandeur of effect quite without a parallel. Its name, originally designating a mechanical device or implement of any sort, became at a later day appropriated in one sense to musical instruments of whatever kind; still later, to wind instruments only; and ultimately, to that which is, *par excellence*, the organ.—The early history of the organ is obscure, or indeed lost. A plausible supposition is, that the instrument may have been suggested by some modification of the Pandean pipes, such as the addition of a reservoir to receive condensed air, which should then be distributed to the pipes at the pleasure of the player. At what periods any considerable enlargement or improvements in it began to be made is not known. Ctesibius, about the middle of the 3d century B. C., is said to have invented a hydraulic organ, the *hydraulicon;* a pneumatic organ is also mentioned by some ancient writers; the distinction between the two could not have been in the employment of water and air respectively in the pipes, but merely in the use in one, but not in the other, of the power of water for supplying air to the pipes. Mersenne describes an organ carved on an ancient monument in the Mattei gardens at Rome, the form, the operation of keys, and the bellows of which closely resemble those of the present day. St. Augustine, commenting on the 56th Psalm, alludes to an instrument inflated by bellows. Pope Vitalian is related to have first introduced organs into some of the churches of western Europe, about A. D. 670; but the earliest trustworthy account is that of the one sent as a present by the Greek emperor Constantine Copronymus to King Pepin, A. D. 755. Organs were common in England before the 10th century, and are said to have exceeded in size and compass those of the continent. The largest was obtained by Elfeg, bishop of Winchester, in 951, for his cathedral. They were still very rude in construction, and of limited capacity. The keys were broad and large, and, it appears, were to be struck with the fist. The pipes were of brass, and harsh in tone. In the 12th century the compass of many of these organs, perhaps of any, did not exceed 12 or 15 notes. About this time half notes were introduced at Venice. In some of the rude instruments of the same period, a plan of concords had been arranged, such that each key in the proper compass called forth not only its own note, but by other pipes also its 5th and 8th above. William of Malmesbury, in 1143, mentions an organ, in playing which a wind "forced out by the violence" of boiling water, "passing through brass pipes, sends forth musical tones;" a device which would seem to have anticipated the harsh steam organ, or "Calliope," not long since invented in the United States. Pedals, or foot keys, were added to the organ by Bernhard, a German, in 1470; and while the improvements made have been various and by builders of many nations and periods, it seems to have been in the 15th century that the instrument reached substantially its present form. Among famous builders, the earliest were the family of Antegnati, of Brescia, in the 15th and 16th centuries; after these, in the 18th, Serassi of Bergamo, and Callido of Venice. In England, very few instruments escaped the organoclasts in 1641; at the restoration few eminent builders survived, and foreign artists were called in. Within the past 20 years great improvements have been made in the tone, as dependent on "voicing" of the pipes; and the "touch," or quickness of response to the keys, and other mechanical arrangements, have also been greatly improved.—The tones of the church organ are yielded by many series or rows of pipes or tubes, the rows being collected into two, three, or more groups or sets, which really constitute as many distinct organs, but all connected in one arrangement. The size of the entire instrument, the number of the partial organs, and their complexity, vary much according to the requirements of special cases; and the position given to the several parts may also vary. Each row of pipes in each partial organ is, as a rule, intended to be susceptible of being played upon alone; but in a few instances a double, triple, or quadruple row is played as one. Any complete series or row, single or multiple, of the pipes, intended to sound throughout its scale as one instrument, is called a "register," and, for reasons hereafter to appear, a "stop;" if it embraces a single row of pipes, the register or stop is called simple; if two or more rows, to be played as one, compound. Of the pipes, some are mouth or flute pipes, others reed pipes; in the former, the pitch of the notes yielded is high or acute in the inverse ratio of the lengths of the pipes; in the latter, the lengths of pipe should have the like ratio to the tones yielded by the vibrating brass tongues or reeds. The pipes yielding in each single or multiple series successive notes, are fixed at their lower ends, which are conical, tapering downward, in a rack or frame, through a stout board forming the bottom of which they communicate by small openings with as many narrow channels beneath it, separated from each other by air-tight partitions. This board, forming part of what is improperly denominated the "sound board" (the organ, unlike the piano, having in fact no sounding board), may be considered as the top of an air-tight box, the wind chest, which receives air directly from the bellows by a large passage called a wind trunk. Each partial organ has its own wind chest and wind trunk; and each is really a collection of several registers or series of pipes, which stand side by side in parallel rows on the frame above the wind chest, and all opening into the channels of the sound board. Imagine a very long and somewhat broad, tight box (the wind chest), which, however, is usually of only half the breadth of the frame and sound board, transversely across and within which latter run the channels already named. These have no communication with each other, and no exit for air forced into them, save through the pipes above, which are thus made to sound; but these channels are also closed each by a pallet or spring valve below (on the side opening down into the wind chest), so that, although the chest is kept filled from the bellows, no air can enter them, or affect the particular pipe or pipes opening into them, until this valve is depressed. To depress this valve, the player touches a key or pedal, as the case may be. The connection between the key and the valve, varying somewhat with position of the parts, is usually by the following pieces: the key or pedal elevating a "sticker" (short link), this acting on a "back-fall" (lever), this pulling down a "tracker" (long link or slender strip of pine), this attached to and moving a "roller," by which is drawn down what is called the "pull-down wire;" and this last, passing up by a minute opening through the bottom of the wind chest, depresses the required one of the valves already referred to. In a church organ of good size (not the largest) there are usually three of the partial organs. Each has its several registers or rows of pipes, simple or compound; and of the registers, each has such a succession of pipes as will give the tones and semitones through its compass, two or more octaves. The performer on the ordinary piano, touching a white or black key, evokes one single tone or semitone from the string or wire thus agitated. But in the organ, one key struck depresses one valve, and opens and lets air into one channel. Now, this channel has opening into it from above, not only a pipe giving a certain fundamental note, but always pipes of some of the other registers of that partial organ, and usually a pipe or pipes of every one of its registers (according as each is simple or compound); and these pipes of the various registers that open into each channel, are so selected and attuned in the making of the organ, that, while as above intimated one shall give a fundamental note, the others shall give the chords—unisons, fifths, octaves, twelfths, &c.—of that note. It follows that the striking of any one key can be made to call forth at once a leading note, its unisons, and the pre-determined other chords. Suppose, then, a given white key elicits G and its chords; the black key next above will give G♯ and its chords; the next white key, A and chords; and so on. That is, a key or pedal opens a valve, and hence a transverse channel, taking a row of pipes transversely across all the different registers of one partial organ; so that we may say each register, running lengthwise, is represented in every channel, that is, in every key (or pedal) before the performer. And this is generally true; but a few registers do not extend through an entire compass. One bank or row of keys or pedals, then, commands one partial organ. Three of these, therefore, must have three rows, two for the fingers and one of pedals. Larger organs have three, four, or more rows of finger keys. The pedals usually act on the largest pipes, which are of wood, and in the form of hollow square prisms. It will now be seen that each partial organ, or row of keys, represents in a manner a choir or band, but one in which the chords that can be produced are of certain tones only, determined beforehand by the pipes or reeds used. The first three rows of keys connect with the three usual partial organs; the first row playing what is called the swell organ; the second the great organ; the third, the choir organ. The pedals play what is called the pedal organ. But any one of these, if played always with all its registers open, would give a uniformly forcible and consequently monotonous effect; and it is necessary therefore to place the registers also at the command of the player. This is done by means of long narrow strips of board, termed "sliders," which are let into the under side of the upper board of the wind chest, already referred to, by means of rectangular grooves cut into the board lengthwise, one in the course of each row or register of pipes. The slider fits so closely as to prevent any considerable leakage of wind, and has small holes made through it in such positions that when it is drawn out, say 2 inches, these holes communicate in straight lines from all the pipes of that register down into the several transverse channels; but when the slider is pushed in, the holes fail to match, and the corresponding register of pipes receives no air and is silent, although all the open registers of the organ be played at the time. Each simple or complex register, in each partial organ, then, has its slider; and these are drawn out or shut in by means of the "stops" or "draw-stops," which are the knobs connected with draw-stop rods appearing above the keyboard, and on each side of the performer. The connection from the knobs to the sliders is as follows: the draw-stop rod, pulled out, turns a "square," or rectangular lever turning on a centre; this moves a "trace" (link), and this a "lever" which actuates the slider. Thus a register comes also to be called a stop; and in a tolerable manner the power and capabilities of a given organ are estimated by the number of its stops or registers. The bellows, usually a single one, is at the present time placed horizontally, and is often on a level with the player, a little way within the face. The pedal organ pipes usually stand nearly on a level with the bellows; the great and the choir organ higher, the first in front; the swell organ highest, and at the back. The swell organ is so named from its use; it is entirely enclosed within a tight box of thick pine, lined with paper or leather to deaden the sound when closed; but its front is a sliding door, or several separate horizontal doors which open on axes; and these, gradually opened or closed, under the control of a pedal for this special purpose, give the effects of *crescendo* and *diminuendo*. The traces and trackers can be introduced of such lengths as required by the remoteness of the several partial organs from the keys and stops, which is, in rare instances, a distance of 90 feet. An organ at Birmingham is estimated to have 4½ miles of trackers. It will now be understood that, while each key commands a particular tone and its chords in one partial organ, each stop proper commands one register in one organ; and the number and kind of stops drawn out at a given time will determine the character of the tones and chords secured. But beside these, there are certain knobs which control arrangements called "couplers" (mechanical stops); one of these coupling all the keys of two partial organs, say the great and the choir, so that the player performs on both by fingering one row of keys; another coupling all three organs with one set of keys. Of these couplers the organ of Trinity church, New York, has 11—an unusual number. The registers then represent so many distinct and sometimes unlike musical instruments; certain series of pipes being made to imitate more or less closely the flute, trumpet, &c. The several registers are of pipes that are open, stopped, or half stopped, and sounding by embouchures or reeds. These circumstances not only affect the pitch, but also the *timbre* or quality; and builders further vary the quality of the tone by means of the material of the pipes—wood or metal, in the latter case either tin and lead, tin, or zinc—by the form given to the open top at which the air escapes, and to some extent by the ratio of the diameter of the pipes to their length. Pure tin gives the most clear and brilliant tone; but this, as well as the alloy of tin and lead commonly used, is liable by its weight and vibration to batter slowly at the lower end and shorten, an effect obviated by the use of wood or zinc pipes. The *timbre* of the stopped and half-stopped pipes is more dull and soft than of the open. Both the number of registers and the whole number of pipes differ very greatly, according to the tastes of builders and the requirements of purchasers. Of the stops or registers, some take their names from the quality of sound they are intended to imitate; some from the harmonic relations they bear to the leading register, the open diapason. The most usual registers (which are, of course, distributed among the several partial organs) are these: 1. The open diapason—metal mouth pipes, open at the upper end, and extending through the entire proper compass of the organ. 2. Stopped diapason—mouth pipes, generally of wood, stopped above; pitch, an octave below. 3. Double diapason—wooden mouth pipes, open; pitch, also an octave below that of 1. Generally, these are confined to the two lowest octaves of the compass, giving the lowest notes of the instrument. 4. Principal—metal mouth pipes; pitch, an octave above that of 1. This stop is first tuned, and from it all the others. 5. Dulciana—metal mouth pipes; pitch, unison with 1. The sweetness of tone is secured by increased length and narrowness of the pipes. 6. Twelfth—metal mouth pipes; pitch, a 12th above that of 1. 7. Fifteenth—metal mouth pipes, an octave above the principal (4). 8. Flute—metal and wood pipes, in unison with 4. 9. Trumpet—reed pipes of metal, in unison with 1. 10. Clarion (or octave trumpet stop)—reed pipes of metal, an octave above 9. 11. Bassoon—reed pipes, for the lower notes, in unison with 1. 12. Cremona (clarinet)—reed pipes, in unison with 1. 13. Oboe—do. do. 14. *Vox humana*—reed pipes, in unison with 1; an imitation of the human voice, which, however, is seldom very satisfactory. To these have more recently been added the *tremolo*, a mechanical contrivance by means of which a fine, tremulous effect is given to any or all the registers of one partial organ; and also the *voix céleste*, or two rows of pipes slightly out of unison, which by interference of sound imitate the same effect. In some large organs, especially those of continental Europe, there is a great superfluity of stops, some of them absurd imitations of various instruments, and seldom useful. Among ordinary compound stops are: 1. The *sesquialtera*—4 or 5 rows of open pipes, at intervals of a 17th, 19th, 22d, 24th, and 26th above the open diapason (1). 2. Cornet—a stopped diapason, principal, 12th, 15th, and 17th. 3. Mixture or furniture stop—several ranks of pipes, nearly the same as in the sesquialtera, but some of higher pitch. An organ built in 1733 for a church at Pisa has 4 rows of keys, and more than 100 stops. The organ of the Seville cathedral has 100 stops and 5,300 pipes; one at Weingarten, in Swabia, 60 stops and 6,666 pipes, of which there are 7 pipes of 16 feet length, and 8 of 32 feet; one at Haarlem, 60 stops and 5,000 pipes; one at Rotterdam of 5,500 pipes, and altogether 150 feet in height; one at Baltimore, Md., 36 stops and 2,218 pipes. The three largest organs in the United States, are in New York, viz.: that of Trinity church, the compass of the great organ in which is from CCC through 5½ octaves, and which has 3 rows of keys, 43 stops, and 2,169 pipes, including a double open diapason of 32 feet; that of St. George's church, which has 47 stops, and 2,446 pipes, including one of 32 feet, and that of St. Stephen's, having 46 stops and 2,029 pipes. The compass of the leading stops in German organs is from CC (an 8-feet pipe) to F in alt.; in the English, sometimes descending to G below, or to CCC; in American, usually from CC to G in alt. This is also the compass of the swell, and of the choir organ. The stopped pipes are closed by a plug or tompion in the upper end, which is shiftable, to regulate the pitch. The half-stopped have a sort of chimney at top; and in some pipes the ear of metal on each side of the mouth is also bent inward or outward, to modify the pitch. The reeds of reed pipes are similar to those of the accordion, of brass or copper, and broader as well as of proper length. The length of pipes (in mouth pipes, the length above the orifice) is generally spoken of with reference to that of tuning, or pitch C, which is in the principal register, 1 foot long. The octaves below double the length successively, giving 2, 4, 8, 16, and 32 feet pipes. The last are the largest used, and these rarely; their employment is one of the circumstances giving to an organ the highest rank. In a general way, the diameter of the pipes as well as their length is varied in obtaining differences of pitch. The relations of some of the notes and of their chords to length may be exhibited thus:

Notes.	In the open diapason.		Principal, length.	Fifteenth, length.
	Length.	Diameter (about).		
CC...............	8 feet.	8 inches.	4 feet.	2 feet.
C tenor..........	4 "	4 "	2 "	1 foot.
Middle, or pitch C	2 "	2 "	1 foot.	6 inches.
C above..........	1 foot.	1 inch.	6 inches.	3 "

The middle C of dulciana is 2 feet 2 inches long, and about 1¼ inches in diameter. Several attempts have been made in the construction of organs to avoid the imperfection of chords naturally arising where several octaves must be attuned (see HARMONY), by means of dividing the octave into more than 12 intervals. The divisions attempted have ranged from 17 to 24 intervals, the organs which were so made being called enharmonic; but the necessary complexity of the manuals and pedals, quite sufficient to alarm the practical organist, has prevented their coming into use. In the tuning of organs, some difference of practice still prevails. Some tune from C, and allow of the wolf, or discordance arising from the flatness of some of the fifths. Others tune from A, adopting equal temperament; and this, approximating nearer to the voice, interferes less with other instruments, and is more agreeable. M. Grenié of France, about the year 1810, introduced "free" in place of "beating reeds," the former being taken from instruments in form of the accordion. Mr. Bishop has stated, however, that free reeds were in use from time immemorial in China. Their advantages consist in a less liability to get out of tune, and in their admitting, to a much greater degree, of expression, or swell and diminution of tone, by varying by use of a pedal the pressure of the wind. The free reeds were applied also by Erard, but afterward fell for some time into disuse. In the London exhibition of 1851, the French and German organs had free-reed stops; in the English they were not yet in use. They are not much employed in this country. M. Grenié's reed, of wood or copper, had the form of a parallelopipedon, the tongue, a thin plate of brass, being so placed as to vibrate only in the stream of admitted air, and not against the reed, thus avoiding the harsh or uneven tone to which the old reeds were liable. The sound thus becomes quite as pure as that of the flute pipes. He constructed open reed pipes 16 feet long, the tongue being a flat slip of copper, 9.449 inches long, 1.378 broad, and 0.118 thick; their vibrations caused the pipe placed in the porte-vent and neighboring elastic bodies to tremble. See further, M. Grenié's papers in the proceedings of the French institute. For further details in respect to construction of organs, consult *L'art du facteur d'orgues*, by F. Bedos de Celles (Paris, 1766 and 1778, the last in folio, 137 plates), which, though old, is still one of the best works on the subject; Abbé Vogler's German works on organ building; G. Serassi's *Lettere sugli organi* (Bergamo, 1816); "The Organ, its History and Construction," by Rimbault and Hopkins (London, 1856); and in respect to performing, C. H. Rink's *Praktische Orgelschule* (6 parts, Leipsic), and many other popular treatises.—The Alexandre organ, so called, being constructed substantially on the principle of the harmonium, will be considered along with the latter under the head of REED INSTRUMENTS. In the barrel or hand organ, a bellows within the instrument is worked by turning a winch, while by the same action, by means of an endless screw, a cylinder or drum is turned, on which the tunes are set in brass pins and staples, at such distances as required by the lengths and succession of the notes, as in the pins studding the cylinder of a musical box. The pins raise keys, which press down stickers, and open pallets or valves, admitting air to the pipes required. The Apollonicon, built many years since, in London, was a gigantic barrel organ, 24 feet high and 20 feet broad; it could be played by 8 large cylinders, or by 6 performers on as many sets of keys. The tone was fine, and the effects grand and novel; but the substitution of mere mechanical action for the skill and taste of the living organist was justly deprecated, and the instrument has not come into vogue. The organolyricon is an extremely complex instrument of French invention, much on the principle of the organ, but combining more distinctly a great variety of instruments and effects, in imitation of a tolerably full band or orchestra.

ORGANIC REMAINS. See PALÆONTOLOGY.

ORGUNJE. See KHIVA.

ORIANI, BARNABE, an Italian astronomer, born in Garegnano, near Milan, April 15, 1753, died in Milan, Nov. 12, 1832. He early manifested a taste for astronomical science, and at the age of 23 was attached to the observatory of Brera. In 1786 he was sent to England to buy instruments, and there made the acquaintance of Herschel, with whom he kept up a correspondence during life, and on his return coöperated with him in measuring the arc of a meridian. When the Italian institute was founded, he was one of the first 30 members. On the invasion of Napoleon and creation of the Italian kingdom, he was made count and senator, having previously refused an invitation to go to France; and upon the return of the Austrians, he was confirmed in his situation as director of the observatory, which place he held until his death. He was one of the first who calculated the orbit of Uranus; and when Ceres was discovered by Piazzi in 1801, he proved that it was a planet, and not a comet as had first been supposed.

ORIBASIUS, a Greek medical writer, born probably in Pergamus, Mysia, about A. D. 325. He was the friend of the emperor Julian, who appointed him quæstor of Constantinople, and sent him to Delphi to attempt to restore the oracle of Apollo. Under the succeeding emperors his property was confiscated, and he was banished, but was afterward recalled, and his property was restored. There are extant 3 genuine works of Oribasius: *Collecta Medicinalia*, *Synopsis*, and *Euporista*. The first of these is valuable on account of its citations from many writers whose works are now lost.

ORIFLAMME (Lat. *auriflamma*), the banner of the Capetian kings of France. It was originally that of the abbey of St. Denis, being used in religious ceremonies, and carried also by the counts of Vexin, in their capacity of patrons of the monastery, in the wars they waged for its protection. Philip I. of France having annexed Vexin to his dominions, the charge of carrying the oriflamme devolved upon himself and his successors. Louis VI. raised it for the first time in 1124. It was disused after the defeat of Agincourt in 1415. It was a banner made of red or flame-colored silk, with 2 notches at its end, adorned with green silk tassels, and hanging from a gilded shaft.

ORIGEN, surnamed ADAMANTIUS from his inflexible zeal, a Christian scholar and teacher of the 3d century, born in Alexandria in 185, died in 254. His father, Leonides, was a zealous Christian, and educated him strictly in the doctrine and morality of the gospel. He went first to the catechetical school of Clement, and afterward to the Neo-Platonic school of Ammonius Saccas, where he soon became distinguished. When he was 17 years old the persecution under the emperor Septimius Severus broke out at Alexandria. Leonides was one of the first to be arrested. Origen would fain have shared his fate, and courted danger by [illegible] ing everywhere that he was a Christian. [illegible] a stratagem of his mother prevented [illegible] of sacrifice; and the young man, [illegible] cency to leave his parental home, [illegible] write to his father, and exhort him [illegible] firm. Leonides was martyred, [illegible] the family was confiscated, and [illegible] mother and her 6 younger [illegible] pelled to look for support [illegible] matron of Alexandria, [illegible] took him into her [illegible] him the means of [illegible] son Paul was a [illegible] heresy compelling [illegible] munion with [illegible] school on [illegible] become [illegible] invited [illegible] school [illegible] than most of his pupils. At first he taught the profane arts and sciences, but soon confined himself to religious and scriptural instruction. Neither the clamor of the rabble nor the murder of his best pupils could interfere with his persistent teaching. He was stoned in the streets, forbidden to lecture, and driven from the city, but only to resume his work more resolutely than ever when the tumult subsided. Gradually an ascetic spirit took possession of him. He refused pay for his teaching, sold his library of heathen authors, slept upon the ground, wore but one garment and no shoes, gave up all stimulating drinks, lived on 5 pence a day, and, to secure exemption from fleshly lusts, made of himself a eunuch. He worked incessantly, and taught not only in the house, but as he walked and travelled. He dared to attend the death scenes of his scholars, and to comfort them at the stake. Among his pupils were women as well as men. After the death of Severus in 211, Origen ventured to make a journey to Rome, and his visit confirmed his purpose of doing some great work for biblical scholarship. Relinquishing part of his duties to his assistant Heraclas, he gave himself to the study of Hebrew, in which he soon became proficient above all living men. His converts became his scribes. Summoned to Antioch to meet the emperor Heliogabalus and the empress Mammea, he made such an impression by his learning and his accomplishments that the persecutions against the Christians declined. On his withdrawal to Palestine, though yet unordained, he was allowed by the bishops to teach in the Christian assemblies. To avoid this scandal, in 228, when he was 43 years old, he obtained from the bishop of Cæsarea, with the consent of the other bishops of Palestine, priest's orders. This ordination was regarded by the bishop of Alexandria as irregular, and he refused to receive Origen back, or to allow him to teach or preach in Alexandria. Two councils were held, in which he was excommunicated as a heretic, deprived of the priestly office, and banished from his school. The western churches took sides with the Alexandrian bishop. But the churches in Arabia, Palestine, and Phœnicia still upheld him, and he found a welcome from the bishop of Cæsarea, and work as a scriptural interpreter. The principal heresy of which Origen was accused was the denial of eternal punishment; and his writings certainly justify that charge. It is also affirmed that he taught the possible repentance and future salvation of the devil. The only evidence in support of this is, that some who afterward taught that notion cited the authority of Origen in support of their view. In the persecution under Maximin, Origen was forced to hide himself for two years in Cappadocia; and in the Decian persecution which followed, he was imprisoned, and only released after severe and protracted torture. His bodily sufferings in this persecution, added to the natural infirmities of age, brought on rapid decline, which terminated his life. His tomb was preserved for many centuries near the high altar of the cathedral of Tyre, and was only lost when that city was destroyed during the crusades.—The writings of Origen were very voluminous, and in many kinds, critical, philosophical, polemic, and practical. Most of them, if the tradition of their large number is to be trusted, are lost. Of those still extant, the principal are the "Hexapla" and "Octapla," commentaries on the Scriptures, "On Principles," "On Prayer," "On Martyrdom," and his 8 books "Against Celsus." The "Hexapla" was an edition of the Old Testament in 6 parallel columns, in Hebrew, in Greek letters for Hebrew words, and in the 4 versions of Aquila, Symmachus, the Septuagint, and Theodotion. Two more versions were added in the "Octapla," one found in Jericho, and the other at Nicopolis in Epirus. A smaller "Tetrapla" contained only the first 4 of these versions without the original text. This splendid work, of such value in the recension and purification of the text of the Old Testament, exists at present only in fragments. Most of the MS., which appears never to have been copied, was destroyed at the capture of Cæsarea by the Arabs in 653. Transcribers of his text, misreading his critical signs and marks, made many alterations, and it is not probable that the text retains its original purity. Many eminent modern scholars have labored to restore the work and edit it from these fragments. The standard edition is that of Montfaucon (2 vols. fol., Paris, 1713). The story that Origen was occupied 28 years in the preparation of this great work, has no trustworthy foundation. The commentaries of Origen upon the Scriptures cover more ground than those of any other ancient interpreter. They are remarkable for the constant use of the allegorical method. The literal sense is always secondary, and the critic never fails where it is possible to find in the simplest fact or the plainest exhortation some hidden meaning. The work of Origen "On Principles" remains only in the Latin translation of Rufinus, and as this not only is incomplete, but has been altered by the translator. Intended as a refutation of heresy, it contains some notions which seem heretical, among others the notion of the preëxistence of souls, and of the souls of the stars. Editions of this work were published in Germany in 1836 by Redepenning in Leipzig, and by Schnitzer in Stuttgart. The work "On Prayer" was addressed to his friend Ambrose. It takes the Lord's prayer as a model, explains this, and vindicates the meaning and worth of prayer. An edition of this work was published by Reading (London, 1728). The treatise "On Martyrdom" is a defence of death for the faith, and an admonition to constancy. In point of style it is one of the most finished of Origen's works. It was published by Wetstein (Basel, 1674). But his most celebrated work is his apology for Christianity contained in the 8 books "Against Celsus." This is regarded as he most complete defence of the Christian reigion that has come down from the ante-Niene age. Celsus was the name of more than ne distinguished sceptic, satirist, and man of cience of imperial Rome; but the Celsus whom rigen attempts to refute lived in the latter art of the 2d century, was a friend of the poet ucian, and, according to Eusebius and the hurch fathers, an Epicurean. In modern imes, however, Michaelis and Brucker, from more careful examination of his views, have lecided that he was a Neo-Platonist. The vork and opinions of Celsus are mainly known o us in the representations of his adversary. rigen answers one by one, and at length, the bjections of Celsus: that the Christian assemlies were secret; that there is nothing new in heir moral teaching; that the pretended mirales were really the work of magical art; that he prophecies were misapplied and unfulfilled; hat ignorant men could not have been made nstruments of a really noble religion; that God n Christ is an absurd idea; that Christ borowed from Plato; and other minor cavils. Not content with this refutation, he makes a lirect attack upon the system of paganism, and hows the weakness and worthlessness of this, n ritual, in doctrine and morality, as compared vith the religion of Christ. In this work gainst Celsus Origen's acuteness as a reasoner nost appears, and his philosophical system is ound here most clearly stated. The collected vorks of Origen were published under the supervision of the Benedictine fathers, and espeially of Charles de la Rue, the associate and riend of Montfaucon (4 vols. fol., Paris, 1733–9). A more complete edition was published by ommatsch (25 vols., Berlin, 1831–'48). The nost valuable accounts of the life and writngs and influence of Origen are the essay of öhringer in the first volume of his "Ecclesistical Biographies," the critical remarks on rigen in Neander's "Church History," and specially the "Relation of Origen's Life and eaching" by Redepenning (Bonn, 1841). Porions of Origen's works have been repeatedly ranslated into French, German, and English; nd interesting notices concerning the commenaries may be found in the edition published by Iuet, bishop of Avranches (Rouen, 1668). In pite of minor heresies, the works of Origen re regarded by the Roman Catholic church as rthodox in the main.

ORINOCO, a river of Venezuela, South merica, which falls into the Atlantic by umerous mouths between lat. 8° 40′ and 10° ., after a course of about 1,500 m. Its source as never been visited by civilized man, although Schomburgk approached within 30 n. of the place where it takes its rise. It ises in the Sierra del Parima, near lat. 3° 40′ ., long. 64° 30′ W., and flows W. by S. to at. 3° 10′ N., long. 66° 20′ W., about 20 m. . of the village of Esmeralda, where it bifurates, part of its waters under the name of the assiquiari taking a S. S. W. direction and falling into the Rio Negro, an affluent of the Amazon, after a course of 120 m. The other branch of the Orinoco continues to flow N.W., forming part of the boundary between Venezuela and New Granada, until it receives the Ventuari on the right, about lat. 6° 20′, long. 66° 30′. There it makes a sharp turn to the W. S. W., but after being joined by the Guaviare on the left at the town of San Fernando, about lat. 4°, long. 68° 10′, it sweeps around to the N., receiving several smaller affluents in its course, and gradually verging toward the N. E. Near lat. 6° 20′, long. 67° 45′, it is joined on the W. by the Meta, which forms part of the N. boundary of New Granada, and the rest of its course is wholly in Venezuela. From its confluence with the Apure, lat. 7° 30′, long. 66° 45′, it flows nearly E. to the sea, its principal tributaries in this part being the Caura and Caroni, both on the right (S.) bank. About 180 m. from the sea it forms a delta, by sending to the N. a branch which divides into several streams, called the Bocas Chicas, or small mouths, some of them falling into the gulf of Paria and the rest into the open ocean. The main stream, called the Boca de Navios, is divided for about 40 m. by a line of islands leaving a channel about 2 m. wide on each side. At the great mouth of the river the breadth is upward of 60 m., but a sand bar extends across the navigable channel in the centre, with 17 feet of water. Several of the other mouths are navigable, and the main stream may be ascended for about half its length. It has more than 400 navigable tributaries, and at a distance of 560 m. from the sea is more than 3 m. wide. At Bolivar, the head of tide water, 250 m. from the sea, it is 4 m. wide and 390 feet deep. The region drained by the Orinoco, comprising an area of 250,000 square miles, is entirely occupied by immense plains, stretching from the coast chain to the Parima mountains, and from the Atlantic to the Andes, rising in some parts to the height of 1,800 feet, but in many places little above the level of the sea. The greater part of these plains is destitute of wood, but there are some dense forests in certain regions on the N. bank, and along the course of the river. The waters of the Orinoco rise from April to October, attaining the greatest height in July and August, which in the upper part of the river is from 30 to 36 feet, and in the lower 24 to 25 feet; but in one confined place they are said to rise 120 feet above the usual level. The vast plains through which the river passes are at this season to a great extent overflowed. Two remarkable rapids occur in the upper parts of the Orinoco, called the Atures and Maypures, or Apures, the one in lat. 5° 8′ N., about 80 m. below the junction of the Atabapo and Guaviare with the Orinoco, the other about 36 m. lower down. These rapids are formed by innumerable little cascades succeeding each other like steps, where numerous islands and rocks so restrict the bed of the river that, though the breadth above is upward of 8,000 feet, there only remains an open channel of 20 feet in width. It is almost impossible to pass these rapids, and in attempting it the canoes of the natives are often dashed to pieces against the rocks. From this place the river is navigable for the rest of its course.

ORIOLE, the name of a sub-family of dentirostral birds of the thrush family, characterized by a bill as long as the head, broad at the base, compressed on the sides, with elevated and curved culmen and notched tip; wings long, with the first 3 quills equally graduated, and the 3d and 4th the longest; tarsi short and strongly scaled; toes moderate, the lateral ones usually unequal. In the typical genus *oriolus* (Linn.), beside the above characters, the tail is moderate and rounded, and the claws long, strong, and curved. These orioles are migratory birds, scattered over various parts of the old world; they are usually found singly or in pairs, sometimes in small flocks, on the edges of woods and in fields and orchards, feeding on fruits and insects, flying in an undulating manner from tree to tree; their notes are loud, but mellow and somewhat plaintive; the plumage is generally brilliant yellow, more or less interrupted by deep black markings; the form is stout, and the powers of flight considerable; some of them display great ingenuity in the construction of their nests. The European golden oriole (*O. galbula*, Linn.) has the body clear brilliant yellow, the wings and space between the bill and eye deep black; the quills are edged and tipped with yellowish white, which sometimes extends to the tips of the secondaries; a triangular spot of yellow on the closed wing; 2 central tail feathers black, the lateral ones with yellow tips increasing to the outside; the female is yellowish green above, shading below into yellowish and pure white, the wings brownish black with an ashy tinge; it is about as large as the blackbird, 9½ inches long. This species is found abundantly in S. Europe, Asia, and N. Africa, and some wander as far north as Great Britain and Sweden. The nest is skilfully made, of the ordinary round shape (according to Yarrell), and placed in the horizontal cleft of a branch, each side of which is included in the substance of the nest; the eggs, 4 to 6, are clear white, with brownish black spots most numerous on the larger end; the parents defend their nest with great courage. Though possessing small powers of song, their beauty makes them in request as cage birds; but they are difficult to raise, and rarely live more than two years in captivity. In the districts where they feed on figs the flesh becomes very fat, and is considered excellent eating; being very shy, it is difficult to shoot them. The African golden oriole (*O. auratus*, Vieill.) is about as large as the preceding species, which it much resembles; but the black stripe on the side of the head extends behind the eye, and there is much less black on the wings; the bill is red; it migrates southerly from equatorial Africa. The black-headed oriole (*O. melanocephalus*, Linn.) is of a general yellow color, with the head and throat black; this is also a native of Africa. More than 20 other species are described in Africa, Asia, and the Indian archipelago.—In the genus *sphecotheres* (Vieill.), of Australia, the bill is shorter, stouter, and more curved, and the tail long and even; the species are few, frequenting the tops of lofty trees, feeding on fruits and insects. In the genus *sericulus* (Swains.), also Australian, the bill is longer and more slender, and the wings and tail moderate; these birds live in the large bushes, feeding principally upon figs. In the genus *oriolia* (I. Geoffr.), of Madagascar, the bill is as long as the head with a straight culmen, the wings long and rounded, and the tail long with the lateral feathers the shortest, each one ending in a point.—The name oriole is erroneously given to many conirostral birds of the starling family, especially to the sub-family of *icterinæ* or hang-nests of North and South America; the Baltimore oriole of this group has been described under BALTIMORE BIRD.

ORION, a Greek mythical hero, according to the common account the son of Hyrieus, of Hyria in Bœotia, called by the Bœotians Candaon. He was a giant, strong and handsome, and, coming once to Chios, fell in love with Æro or Merope, the daughter of Œnopion. To please her, he cleared the island of wild beasts; but Œnopion constantly put off the marriage, and Orion, being intoxicated on one occasion, forced his way into Merope's chamber. To avenge this insult, the father with the aid of Bacchus and the satyrs put out Orion's eyes. He recovered his sight by going toward the east, and exposing his eyeballs to the rays of the rising sun; and on his return to Chios for the purpose of punishing Œnopion, being unable to discover him, he went into Crete, where he lived as a hunter with Diana. Four accounts of his death are given. One is that he was killed by Diana for attempting to violate her; another, that Apollo, indignant at Diana's love for him, challenged her to hit with an arrow a distant point in the sea, which proved to be the head of Orion, who was swimming; a third, that, having been carried off by Aurora, who loved him for his beauty, Diana, to please the indignant gods, put him to death; and the fourth, that, having boasted he would clear the earth of wild beasts, the earth sent forth a scorpion which killed him. After his death he was placed among the stars, where he appears with a girdle, sword, lion's skin, and club, the brightest constellation in the northern heavens.

ORISSA, an ancient province of Hindostan, on the W. side of the bay of Bengal, between lat. 17° 16′ and 22° 23′ N., and long. [illegible] and 87° 20′ E., extending about 400 m. along the coast with an average breadth of 70 m.; pop. estimated at 4,500,000. It is embraced in the British districts of Cuttack, Mohurbunge, and Konjeur, the greater part of it lying in the first named. The most important towns are Cuttack, Juggernauth, and Balasore. The chief rivers are the Godavery, which forms the S. boundary, and the Mahanuddy. The greater part of the interior consists of rugged hills and uninhabited jungles, in which wild animals, especially elephants, abound. The soil is fertile, particularly in the S. E., and the principal production is rice. The population is composed chiefly of Oorias, who are Brahmins and inhabit the low districts; Coles or Hos, a wild hill tribe, in the north; Khonds in the middle; and Saurias or Sauras in the south. The temperature in summer is extremely sultry, the thermometer reaching 115° in the shade; and the climate is one of the most unhealthy in India. The country is consequently but thinly settled, and not well cultivated.—The downfall of the Hindoo rule in Orissa may be regarded as having been consummated in 1592, when the administration of Cuttack passed into the hands of a lieutenant of the Mohammedan king of Bengal. The rest of Orissa, except a part of Midnapore, was acquired by the English East India company by virtue of the firman, dated Aug. 12, 1765, of Shah Alum, emperor of Delhi, granting them the dewanny of Bengal, Bahar, and Orissa. Some of the hilly regions are still in possession of native chiefs, who pay a trifling nominal tribute to the British, or to their dependent the Nizam.

ORIZABA, Peak of, a volcano of Mexico, and the first land visible on approaching the coast in the direction of Vera Cruz. It was called by the ancient Mexicans Citlaltipetl, or Mountain of the Star (from *citlalin*, star, and *tepetl*, mountain), probably from the circumstance that when in a state of eruption the flame at its summit appeared, when seen from a distance, like an immense star on the verge of the horizon. It has an altitude of 17,372 feet. Its most considerable eruptions known to history took place between 1545 and 1566. In common with the other great volcanoes of Mexco, Popocatepetl, Tuxtla, Jorullo, and Colima, t seems to have lost most of its activity, and o be in a state of repose. The form of Orizaba is that of a very exact cone, truncated at its ummit. Its top is covered with eternal snow, nd its sides are so steep as almost to preclude scent. The only ascent on record was made n May, 1848, by Lieuts. Reynolds and Maynard of the American army.

ORKNEY ISLANDS (Lat. *Orcades*), a group lying off the N. coast of Scotland, separated from it by a channel 6 or 8 m. wide called the Pentland frith, and extending between lat. 58° 7′ and 59° 20′ N., and long. 2° 24′ and 3° 23′ W. They consist of 67 islands, of which 27 re usually inhabited, and 13 are of considerale size; aggregate area about 600 sq. m., or 84,000 acres, of which about 84,000 acres are nder culture; pop. in 1851, 31,455. Among he larger islands are Pomona, or Mainland, he largest of the group, with nearly half the ntire population; Hoy, N. and S. Ronaldshay, Westray, Sanday, Eday, Stronsay, Ronsay, and Shapinshay. Hoy is the only one of the group that can be called mountainous, its greatest elevation being 1,600 feet. Geologically the islands belong to the old red sandstone formation, though granite is found near Stromness in Pomona. In the peat mosses which abound throughout the group traces of ancient forests have been discovered, but at present the climate is unfavorable to the growth of trees. Marl and bog iron ore are the most important mineral products. There are no streams of any size, but springs of good water are abundant; and there are several lakes, the largest of which, in the island of Pomona, is 14 m. in circumference. There is but little frost or snow; the mean heat throughout the year is 45°, and the greatest range of the thermometer is from 25° to 75°. Agriculture is in a backward state. The herring and cod fisheries are considerable, and large quantities of lobsters are sent to London. The principal manufactures are straw plait for ladies' bonnets, and hosiery.—The same Celtic people who colonized S. and N. Britain seem to have been the original inhabitants of the Orkneys. They were visited by Agricola, A. D. 84, and were afterward favorite resorts of the piratical Northmen. In 876 Harald Harfager made a descent on the Orkneys and Hebrides, and subdued both groups. On his return to Norway he conferred the administration of his conquest on Ronald, the father of Rollo, the ancestor of William the Conqueror. In 920 Sigurd, the brother of Ronald, received this dominion from him, and afterward added to it considerable territory on the mainland of Scotland; and the two brothers thus became the founders of a long line of Scandinavian earls who affected the style of independent princes. In 1098 they became subject to the Norwegian crown; and when James III. of Scotland married Margaret of Denmark (1468), he obtained the Orkney and Shetland islands as security for her dowry. As the islands were never ransomed from the pledge, they thenceforth became attached to Scotland.—Discoveries of ancient relics have been made in the Orkney islands at various times. The most remarkable, found in 1858, consisted of massive pins, brooches, bracelets, and other ornaments, and a number of silver coins which are believed to have been contemporaneous with the earliest kings in Scottish or Scandinavian history.

ORLÉANAIS, an ancient province and government of France, situated near the centre of the kingdom, and bounded N. E. by Isle de France, E. by Champagne and Burgundy, S. by Berry, and W. by Touraine, Maine, Perche, and Normandy. With Orléanais proper, it included the districts of Blaisois, Vendômois, Dunois, Sologne, Gâtinais, Beauce or Pays Chartrain, and Perche-Gouet. It was originally the country of the Gallic tribes called Carnutes and Senones. It was watered by the Loire, Loiret, Loir, Cher, Beuvron, Yonne, Essonne, and Loing. It has been divided into the three departments of Loir-et-Cher, Eure-et-Loir, and Loiret.

ORLEANS. I. A N. co. of Vt., bordering on Canada East, watered by the Black, Barton, Clyde, Lamoille, and Missisque rivers; area, 700 sq. m.; pop. in 1850, 15,707. It has an uneven surface, and lies between the E. and W. ranges of the Green mountains. Numerous small lakes or ponds are scattered over its surface, and Lake Memphremagog extends some distance within its borders. The productions in 1850 were 58,515 bushels of wheat, 70,306 of Indian corn, 407,132 of potatoes, 45,288 tons of hay, 81,947 lbs. of wool, 656,883 of maple sugar, and 645,160 of butter. There were 4 woollen factories, 2 founderies, 15 saw mills, 5 tanneries, 24 churches, and 4,274 pupils attending public schools. Capital, Irasburg. II. A N. W. co. of N. Y., bordering on Lake Ontario, and watered by Oak Orchard, Johnson's, and Sandy creeks; area, 405 sq. m.; pop. in 1855, 28,435. Its surface is traversed E. and W. by the lake and mountain ridges which divide it into 3 level or gently undulating plateaus, and the soil is generally fertile. The productions in 1855 were 379,155 bushels of wheat, 229,731 of oats, 436,975 of Indian corn, 171,867 of potatoes, 34,620 tons of hay, 205,802 lbs. of wool, 912,013 lbs. of butter, and 110,298 of cheese. There were 26 grist mills, 33 saw mills, 10 tanneries, 51 churches, and 10,514 pupils attending public schools. The Erie canal and the Rochester, Lockport, and Niagara railroad intersect the county. Capital, Albion. III. A S. E. parish of La., bounded N. by Lake Pontchartrain, S. E. by Lake Borgne, and S. W. by the Mississippi river; area estimated at 150 sq. m.; pop. in 1853, 162,411, of whom 16,800 were slaves. It has a low and level surface, mostly morass, submerged at high water, and fit for cultivation only on the river margins. The productions in 1850 were 32,180 bushels of Indian corn, 1,495 hhds. of sugar, and 52,505 galls. of molasses. There were 3 ship yards, 6 iron and 5 brass founderies, 3 saw mills, 118 boot and shoe factories, and in 1853 30 churches. Capital, New Orleans.

ORLEANS (Fr. *Orléans*; anc. *Genabum*, afterward *Aurelianum*), a city of France, capital of the department of Loiret, situated on the right bank of the Loire, 75½ m. by railway S. by W. from Paris; pop. in 1856, 43,256. The ancient fortifications have been demolished, to make room for gardens and public promenades. The cathedral was begun in the 13th century, and partly destroyed by the Huguenots. Its reconstruction on a new plan was begun in the reign of Henry IV., and has lately been completed. The churches of St. Aignan and St. Euverte, the old city hall, an edifice of the 15th century which is now appropriated to the museum, and the old houses of Agnès Sorel and of Francis I., are objects of attention. Orleans has a branch of the bank of France (the operations of which amounted in 1859 to nearly 51,000,000 francs), an academy of sciences, belles-lettres, and arts, and a large public library. There are manufactures of hosiery, woollen and cotton blankets, &c.—Ancient Genabum was destroyed by Cæsar, and, being rebuilt by Aurelianus, took his name. Attila with his Huns appeared before its walls; but the prayers of its bishop Anianus (St. Aignan) and the timely intervention of the Roman general Aëtius rescued it from danger. It was conquered by Clovis in 496, and under his successors became the capital of one of the Frankish kingdoms. It was pillaged by the Northmen in [illegible] and 865. Louis the Fat was crowned there in 1108, and a university was established in [illegible]. After the time of Philip of Valois, it became the capital of a duchy, which was bestowed successively upon various princes of the royal family. It adhered faithfully to the French kings during their long wars with the English. In Oct. 1428, the latter, under Salisbury, laid siege to the city, whose inhabitants, encouraged by Dunois and other leaders, resisted heroically; it was finally rescued, April 29, 1429, by Joan of Arc, and the enemy retreated a few days later. The states-general convened there in 1560. The Calvinists in 1562 seized upon this stronghold, which was the next year besieged by the Catholics under the duke of Guise, who died before the walls, murdered by Poltrot de Méré. In 1652, during the war of the Fronde, the duchess of Montpensier, the daughter of Gaston of Orleans, held it against the king.

ORLEANS, Duchy and Families of. That region in France of which the city of Orleans was the capital formed successively a viscounty and a county under the Carlovingian and Capetian dynasties. It was erected in 1344 into a duchy and peerage by Philip VI. of France, who bestowed it as an apanage upon his son Philip, who died in 1375. Thenceforth, beside several princes of the royal family who occasionally bore the title, it was held by three families or branches: 1, that of Orleans-Valois ([illegible]-1498), consisting of 3 dukes, Louis I., the 2d son of Charles V. of France; Charles, the poet; and his son Louis II., who ascended the throne as Louis XII.; 2, the first house of Orleans-Bourbon (1626–1660), which had but one duke, Gaston, the brother of Louis XIII., who died without male issue; 3, the second house of Orleans-Bourbon (1660–1842), which originated with Philip, the brother of Louis XIV. and husband of Henrietta Anna of England; it reckons among its members Philip, the regent under the minority of Louis XV., Louis Philippe Joseph, known as Philippe Égalité during the French revolution, and King Louis Philippe; it is still extant in the persons of this king's sons, the duke of Nemours, the prince de Joinville, the duke of Aumale, and the duke of Montpensier, and of his grandsons. His eldest son, Ferdinand Philippe, who married the princess Helen of Mecklenburg-Schwerin, and died in 1842, was the last who held the title of duke of Orleans.—Of the various families of Orleans, the ollowing are the most important members: I. Louis, the head of the family of Orleans-Valois, born in 1371, died in 1407. The 2d son of King Charles V. by Jeanne of Bourbon, he was first styled duke of Valois, then of Touraine, and finally of Orleans in 1392. Fruitless negotiations were opened for his marriage with Mary, the heiress of Louis the Great of Hungary; and in 1389 he married Valentina Visconti, a Milanese princess, by whom he had several children. When his brother Charles VI. was seized with that madness which for nearly 40 years was productive of so many misfortunes to France, he tried to share the power with his uncles, and through the influence of Queen Isabella secured a considerable part in the administration. On the death of Philip of Burgundy in 1404, he had for a while the full control of affairs, under the title of lieutenant-general of the kingdom, in concert with the queen; but his maladministration soon made him unpopular, and John the Fearless, son of Philip of Burgundy, was looked on as a liberator when he presented himself before the gates of Paris. The rivalry between the two princes foreboded civil war; but the duke of Berry, their uncle, brought about a seeming reconciliation, Nov. 30, 1407, the rivals partaking of the sacrament together in token of amity. Three days later, within a few steps of the Montaigu palace, where he had just been visiting the queen, the duke of Orleans fell a victim to assassins hired by the duke of Burgundy. The latter at first denied all share in the crime, but soon openly avowed it, and induced a Franciscan friar, Jean Petit, to deliver an apology for it before the Sorbonne. This murder gave the signal for civil wars, which are generally styled the quarrels of the Burgundians and the Armagnacs, the atter being the adherents of the family of Oreans. II. Charles, eldest son of the precedng, born in Paris, May 26, 1391, died in Amboise, Jan. 4, 1465. He was carefully educated under the supervision of his mother, Valentina Visconti, and became familiar with the poems of the French trouvères, and of the great Italan writers. On his father's death in 1407, he did not evince the energy which the emergency called for; and when two years later his mother died heart-broken, he was easily persuaded to give up all thought of resentment against John of Burgundy, with whom he igned in 1409 a treaty of peace, styled the *paix fourrée* by French historians. But his party soon found a more energetic leader in Count Bernard of Armagnac, whose daughter he married in 1410, his first wife, the widow of Richard II. of England, having died the previous year. Under direction of this powerful ord, civil war was renewed, in which, while playing a secondary part, the young duke gave evidence of personal courage. The strife having been terminated by the peace of Arras in 1414, Charles joined the French army under the contable d'Albret in 1415, fought bravely in the battle at Agincourt, and was wounded, taken prisoner, and carried to England, where during his captivity of 25 years he composed a series of miscellaneous poems, ballads, complaints, songs, and rondeaus, some of which are elegant and graceful. By the intervention of the duke and duchess of Burgundy, he was at last allowed to return to France in 1440, on condition of paying a ransom of 200,000 gold crowns and not bearing arms against England. He now married Mary of Cleves, who, 22 years later, bore him a son who was afterward Louis XII. On the death of his uncle Philip Visconti, after a fruitless attempt to take possession of the duchy of Milan, he obtained the county of Asti, his mother's dowry. In his later years he became involved in political intrigues against Louis XI., but the monarch treated him with contempt, and the duke is said to have died of grief in consequence. His poems were brought to light in 1734 by the abbé Sallier, who furnished an interesting notice of the author to the *Mémoires* of the academy of inscriptions in 1742. An edition appeared in 1803 in Grenoble; two better ones were published in 1842, by A. Champollion and Guichard. The best MS. of his poems is in the British museum. The English portion of them was printed for the Roxburgh club (4to., London, 1827). They show taste and facility in the use of the language of his long captivity. III. Jean Baptiste Gaston, the youngest son of Henry IV. and brother of Louis XIII., born at Fontainebleau, April 25, 1608, died in Blois, Feb. 2, 1660. He was first known under the title of duke of Anjou, and, under the supervision of 3 successive governors, Savary de Brèves, Du Lude, and Ornano, received an education which made of a naturally weak character a pattern of restlessness, fickleness, and moral cowardice. He early showed signs of opposition to his brother's minister Richelieu, shared in all the conspiracies against him, and on every occasion was frightened into submission and the betrayal of his friends. The first whom he had to give up was his governor Ornano, who died in prison, and who in 1626 had involved him in the conspiracy for which Chalais lost his life. He then consented to marry Mlle. de Montpensier, the richest heiress in France, whom he had previously refused; she bore him an only daughter, afterward greatly celebrated under the title of Mademoiselle, and died suddenly. New but obscure family dissensions and intrigues went on during the following years, in which Gaston was constantly outwitted. He and his mother, and nearly all the courtiers, were utterly worsted by Richelieu in the imbroglio known as the *journée des dupes*, Oct. 1630. The next year, his mother having fled to Brussels, he issued a threatening manifesto against the minister, repaired to the court of Charles IV. of Lorraine, whose sister he secretly married notwithstanding the positive prohibition of his royal brother, and then, joining his mother at her place of exile, entered into a new plot which ended in open rebellion. The governor of Languedoc, the gallant Henry de Montmorency, was persuaded to take part in it, but was deserted by Gaston at the battle of Castelnaudary, in Sept. 1632. Gaston in his fright submitted to terms dictated by Richelieu; but he soon escaped again to Brussels, where he made his marriage known. The minister, taking advantage of this avowal, made the duke of Lorraine pay for his brother-in-law's revolt, and caused his duchy to be forcibly occupied in 1634, the king in person taking the city of Bar-le-Duc. Gaston was spared, as "being of the royal blood of France, which must be respected," but received orders to retire to Blois. In 1636 he was privy to, if not an accomplice in, a plan for the assassination of Richelieu, concocted by the count of Soissons and others; but he was afraid in 1641 to help the latter in the insurrection which cost him his life. In 1642 Gaston shared in the conspiracy of Cinq-Mars, and negotiated personally with Spain; but the secret having been divulged and Cinq-Mars arrested, he gave evidence against his accomplice, which sent the unfortunate youth to the scaffold. On the death of Louis XIII. a new field opened before him, but again he proved unequal to the emergency. He evinced some personal bravery in 1644–'6 when placed at the head of the French army in Flanders, and displayed unusual good sense under various trying circumstances; but when the war of the Fronde broke out, he was found as wavering and selfish as ever, serving and betraying by turns the king, the princes, the parliament, and the popular party, and being on most occasions only a tool in the hands of bolder or more designing persons. His conduct exposed him to general indifference, if not contempt. He was finally exiled to Blois, where he spent his later years in complete insignificance. By his second wife, Marguerite of Lorraine, he had 3 daughters, who respectively married Duke Cosmo III. of Tuscany, Duke Louis Joseph of Guise, and Duke Charles Emanuel II. of Savoy. A man of some parts, and fond of the natural sciences, he was the patron of Voiture and Vaugelas, and the founder of the botanical garden at Blois. He left *Mémoires de ce qui s'est passé de plus remarquable en France de* 1608 *à* 1635, first published at Amsterdam in 1683. IV. Philip II., regent of France during the minority of King Louis XV., born at St. Cloud, Aug. 2, 1674, died in Paris, Dec. 2, 1723. The 2d duke of the house of Orleans-Bourbon, he was the son of Philip I., brother of Louis XIV., by his 2d wife, Elizabeth Charlotte of Bavaria. Until his father's death in 1701 he bore the name of duke of Chartres. He was high-minded, generous, highly gifted by nature, and accomplished by education; but from his subpreceptor, the infamous abbé Dubois, he learned infidelity and immorality. It was Dubois who reconciled him to marrying in 1692 Mlle. de Blois, the natural daughter of Louis XIV. by Mme. de Montespan, a union no less distasteful to his parents than to himself. The abbé was in fact his evil genius. He encouraged him in debauchery, and when at the head of the government influenced him to adopt a system of policy entirely at war with the true interests of France. The young duke early distinguished himself by his bravery at the siege of Mons in 1691 and the taking of Namur in 1692. In the latter year he was also wounded at the battle of Steenkerque. In 1693, at Neerwinden, leading the light cavalry, he penetrated through the thickest of the enemy, and, being carried so far by his ardor as to run the risk of being taken prisoner, cut his way back sword in hand. Such proofs of personal gallantry, connected with military talents, gained him little favor with Louis XIV., who did not wish a prince of the royal blood to shine too brilliantly. Philip was obliged to leave the army, and was coldly received at Versailles. This injustice and his forced inactivity preyed upon his mind, and he plunged into dissipation, but devoted a portion of his time to the pursuits of painting and natural philosophy. After the death of Charles II. of Spain, he signed, in conjunction with his father, a protest against the late sovereign's will, which entirely ignored their rights to the Spanish crown, in case the elder Bourbon line should become extinct. In 1706 the king recalled him to service, and appointed him commander of the French army in Italy, but placed him in fact under the control of Marshal Marsin. The latter, opposed by Prince Eugene, lost the battle of Turin, Philip trying in vain by skilful manœuvres and indomitable courage to retrieve the fortune of the day. He was twice wounded. The next year he was sent to Spain, subdued the provinces of Valencia, Aragon, and Catalonia, took Lerida, which 60 years before had frustrated the efforts of the great Condé, successfully conducted several expeditions in 1708, and gained such popularity as to be received with great honors in Madrid. These successes, the manifest incapacity of Philip V., and the encouragement which he probably received from some Spanish noblemen, led him secretly to aspire to the crown which he was fighting to secure for another. His designs being suspected, he was recalled to France, subjected to a severe questioning by the king, and would probably have been arraigned before some high court had he not been protected by the intervention of the duke of Burgundy. He was finally obliged to make a formal renunciation of all his claims or pretensions to the Spanish throne, and forbidden to appear again at Versailles. Once more exiled from active life, he returned to his wonted occupations; but it was noticed that he devoted much of his time and money to chemical experiments. This, coupled with sudden and mysterious deaths in the royal family, brought him under suspicion; he was charged with having poisoned the dauphin, the duke and duchess of Burgundy, and their second son, [illegible] opening his way to the throne. The people of Paris were incensed by these reports to such a degree as to threaten to assault the Palais Royal, and the life of Philip was in danger. He indignantly repelled the accusation, and insisted upon a trial, his chemist at the same time offering to surrender himself to a magistrate; but Louis XIV., either from the certainty of his innocence or from motives of policy that are not quite apparent, declined an offer which would have cleared off every suspicion. Philip vindicated his good name afterward by the paternal care which he bestowed upon the infant king, then the only bar between him and the throne. By the will of Louis XIV., Philip was to be the nominal president of a council of regency which consisted chiefly of his opponents. He went to the parliament, communicated to them what he pretended that the king had said to him in his last moments, and caused them to set the will aside and place the regency in his hands, with full powers to choose his own councillors. Even the guardianship of the young Louis XV. was confided to him. During the 7½ years that he wielded power (from Sept. 2, 1715, to Feb. 22, 1723), and especially in the early part of his administration, he had to contend against many adverse circumstances. At home, on the death of Louis XIV., all was misery, ruin, and disorder. The public debt amounted to more than 3,460,000,000 livres (about $1,200,000,000 of the present day), the yearly revenue moreover falling short of the expenditures by 78,000,000. The state was unable to pay most of the public officers and creditors; provinces had been devastated by protracted wars; scarcity was felt nearly everywhere, and commerce was completely paralyzed. As a means of relieving he treasury, the regent was advised to repudiate the debt at once; but he rejected the advice, and tried a system of retrenchment and eform. Money was recoined, all government tocks and certificates were subjected to a rigrous revision, and considerable sums were btained from the farmers of the public reveue; but the increase of income thus obtained was scarcely felt. The regent now adopted the old plan of a national bank proposed by John Law, which for a time (1717 to 1720) proved ery successful; but the abnormal inflation of tocks, the unlimited emission of notes, and the onsequent excesses in stock jobbing, ended in terrible crash, and an increase of the public ebt. This however was partly counterbalnced by the suppression of many offices and the edeeming of many branches of revenue which ad previously been alienated. The regent bandoned altogether the foreign policy of ouis XIV. Yielding to the representations f Dubois, who received a large pension from he English government, and perhaps to his wn resentment against Philip V. of Spain, who spired to wrest the regency from his hands and o make good his own claims to the eventual uccession of the French crown, he concluded, Jan. 4, 1717, with Great Britain and Holland, the treaty known as the "triple alliance," by which he consented to expel the pretender from France, to discontinue the fortifications at Mardyck, to destroy the port of Dunkirk, and not to increase the French navy, giving up at the same time all right to trade in the South sea. Meanwhile Alberoni, prime minister of Philip V., was devising vast plans not only to counteract this policy, but to overthrow the house of Hanover in England and the regent in France, and restore Spain to her former rank as a ruling power in Europe. A conspiracy was plotted in Paris by the Spanish ambassador Cellamare, in which the duchess of Maine, who had entertained a deadly hostility against the regent ever since he had caused the legitimated natural children of Lous XIV. to be deprived of their privileges and reduced to the rank of ordinary peers, as well as some discontented noblemen in Brittany, were persuaded to participate. The plot was discovered by Dubois; but the regent contented himself with sending the ambassador back to Spain and the duchess to her chateau at Sceaux; only 4 of the insurgent Bretons were executed. But this outbreak led to active hostilities with Spain; and Austria having joined the "triple alliance" in 1718, war was conducted in earnest. The English destroyed the Spanish fleet, and Berwick stormed some of the northern strongholds of Spain. Alberoni, whose plans were entirely baffled, was expelled from Spain, and by the treaty of Madrid, Jan. 1720, part of western Europe was remodelled; the duke of Savoy received Sardinia in exchange for Sicily, which, as well as the duchy of Milan, was given to the emperor; while the duchies of Parma, Piacenza, and Tuscany were granted in expectancy to the eldest infant of Spain. All this was mostly the work of the abbé Dubois, who, through English influence and his master's weakness, rose to the rank of cardinal and archbishop. Owing to the recuperative power of France, rather than any successful exertions of his own, the regent, on surrendering his power to the young king, had the satisfaction of seeing the country in a condition comparatively better than at the commencement of his administration. Dubois now continued prime minister for about 6 months, and on his death the duke of Orleans resumed the reins of government in that capacity; but his constitution had been shattered by debauchery, and at the end of 4 months he died of apoplexy. By his marriage with Mlle. de Blois he had one son, Louis, born in 1703, died in 1752, and 6 daughters: Marie, duchess of Berry, who died before her father; Louise Adélaide, Mlle. de Chartres, abbess of Chelles; Charlotte Aglaé, Mlle. de Valois, who married the duke of Modena; Louise Élisabeth, Mlle. de Montpensier, who was the wife of Louis, king of Spain, whose reign lasted only a few months; Philippe Élisabeth, Mlle. de Beaujolais; and Louise Diane, who married the prince of Conti. A natural son, Jean Philippe, who was known as the chevalier d'Orléans, became high prior of the order of St. John of Jerusalem, and a grandee of Spain. V. Louis Philippe Joseph, frequently styled Philippe Égalité, the 5th duke of his house and great-grandson of the regent, born at St. Cloud, April 13, 1747, guillotined in Paris, Nov. 6, 1793. Under the title of duke of Chartres, which he bore till 1785, he married in 1769 Louise Marie Amélie of Bourbon-Penthièvre, great-granddaughter of Louis XIV. and Mme. de Montespan, and a most worthy princess, who, owing to her brother's death, brought to her husband the rich inheritance of her house. He increased his immense fortune by speculation, and constructed three of those rows of buildings that surround the gardens of the Palais Royal. He early showed signs of opposition to the court, and in 1771 signed the protest of the princes against the dissolution of the ancient parliaments. Being rather rudely treated by Queen Marie Antoinette, who felt an instinctive antipathy to him, he conceived a violent hatred toward her, which occasionally broke forth in open hostility. In 1776 he became the head of "the princes' party," in opposition to that of the queen, and charged Marie Antoinette with being the instigator of the wrongs and insults which he received from Louis XVI. He claimed a right to be appointed grand admiral of France, but his pretensions were not allowed. In 1778 he participated as a volunteer in the naval battle of Ushant, when the highest praise, soon followed by ridicule, was bestowed upon his conduct; he was then recalled, and received the empty title of colonel-general of hussars. After a visit to London, where he lived on intimate terms with the prince of Wales, afterward George IV., he devoted himself to pleasure and dissipation. At the time of the famous trial of the diamond necklace, he bitterly denounced Marie Antoinette, and is even charged with having encouraged the libellous publications of the countess of Lamotte. He now procured his own election as grand master of the French free masons. In 1787 he appeared in the assembly of notables, and, while evincing little concern at the embarrassments that beset the throne, held secret meetings with the most ardent members of the parliamentary opposition. He openly protested against some heavy loans that were proposed by the government, and was consequently exiled to Villers-Cotterets. The popularity he thus acquired was enhanced by his lavish expenditure of money to relieve the sufferings of the people during the severe winter of 1788-'9. When the elections for the states-general came on, he was chosen at Paris, Villers-Cotterets, and Crespy in Valois. In the solemn procession that took place on the eve of the opening, he was hailed by the crowd with enthusiastic cheers, and in the assembly at once showed his sympathies for the third estate. He was among the first nobles who joined the deputies of the commons on June 25, and aided in transforming the states-general into a national assembly. He was now charged openly with being the abettor of every revolutionary manifestation; and in fact, although he could not have originated a movement that was essentially national, his adherents had a share in all the troubles that followed, and thus favored the impression that he aspired to the crown. The garden of the Palais Royal was the usual place of meeting for popular agitators. Thence started the procession which on July 12 carried the bust of the duke of Orleans by the side of that of Necker, through the streets of Paris; and thence came the signal for the storming of the Bastile. The events of Oct. 5 and 6 were generally ascribed to the Orleans party; the duke himself was accused by the Châtelet; but the assembly declared that there was not sufficient reason to allow one of its members to be arraigned before a tribunal. Lafayette, however, who was now exerting a sort of dictatorship, thought it necessary to keep out of the way a man who stood in the attitude of a pretender, and forced him by threats to go to London, where he remained for 8 months. On his return, July 11, 1790, while his adherents were secretly manœuvring with renewed ardor, there were some attempts at a reconciliation between him and the court; he had been at last promoted to the admiralship; an interview with the king and another with the queen seemed to have pacified angry feelings; but the treatment which he received from the courtiers estranged him for ever, and incited him to listen to still wilder projects. His elevation to the throne was spoken of; but, wavering and pusillanimous, he baffled all his adherents' hopes, while Mirabeau, who had for a moment favored his aspirations, turned from him in disgust. His want of character became especially apparent on the flight of the king from Paris, when he permitted the best opportunity for the accomplishment of his plans to escape, without even the show of an attempt. His party, however, continued to foster popular movements; they had a hand in that of June 20, and in the insurrection of Aug. 10, 1792. The duke freely mingled with the Jacobins, the Cordeliers, and the members of the revolutionary commune of Paris, whose favor he courted by the meanest arts. He now dropped his patronymic to assume the surname of Égalité, which was, in the name of the commune, bestowed upon him by Manuel. He was elected to the convention, and took his seat among the *montagnards*. He did not leave it on the trial of Louis XVI., and either of his own accord, or, as it is said, through compulsion and fear, he voted for the death of his cousin, uttering his determination in the following words: "Entirely devoted to the discharge of my duty, and convinced that all those who have made or shall make any attempt against liberty are deserving of death, I vote for death." This verdict was followed by general disgust of indignation; and this dreadful sign of devotion to the revolution, far from redounding to his popularity, branded him as an outcast even from the ranks of the revolutionists. He was still suspected of sinister designs; and such suspicions were enhanced by the plot of Dumouriez to reëstablish the constitution of 1791 and restore royalty. The committee of general security ordered him to be arrested, April 10, 1793, as well as all the members of his family; he vainly asserted his inviolability as a deputy. In company with his youngest son he was incarcerated at the Abbaye, and thence transferred to Marseilles, where he was placed upon trial. His answers were dexterous and forcible. He denied all knowledge of Dumouriez's conspiracy, and insisted upon his unfaltering devotion to the party of the mountain. The revolutionary tribunal of Marseilles found a verdict in his favor. But on the proscription of the Girondists, he was brought back to Paris, by order of the convention, Nov. 5, arraigned the next morning before the great revolutionary tribunal, found guilty on several false or frivolous charges, and forthwith sentenced to death. On hearing this verdict, he exclaimed: "Since you were determined on my death, you ought at least to have put forth more reasonable grounds for my condemnation!" and he insisted upon being at once taken to the scaffold. He thenceforth evinced remarkable self-possession, firmness, and dignity. The insults of the crowd, and the sight of his palace, before which the cart that carried him to the place of execution stopped for nearly a quarter of an hour, left him apparently undisturbed, and he met his fate without the slightest perceptible emotion.—His virtuous wife passed unharmed through the revolution, though she was detained a prisoner. On her release in 1797, she received a pension of 100,000 francs from the government, went to Spain, and thence to Palermo, where she was present at the marriage of her eldest son Louis Philippe with Marie Amélie, daughter of the queen of Naples (1809), returned to France in 1814, was treated with marked respect by Napoleon during the Hundred Days, and died in 1821. Beside Louis Philippe, she bore her husband two sons: Antoine Philippe, duke of Montpensier, born in 1775, died in 1807, who left interesting personal *Mémoires*, contained in Baudouin's and Barrière's collections, and Alphonse Léodgar, count of Beaujolais, born in 1779, died in 1808; and one daughter, Louise Marie Adélaide Eugénie, born in 1777, died in 1847. These children were early separated from their mother and confided to the care of Mme. de Genlis, who was styled "the governor of the princes of Orleans," and conducted their education *à la Jean Jacques*. This lady at the same time held a marked influence over the father's mind, and is said to have encouraged him in his opposition to the court. VI. Ferdinand Philippe Louis Charles Henri Joseph, the eldest son of King Louis Philippe and grandson of the preceding, born in Palermo, Sept. 3, 1810, killed near Paris, July 13, 1842. As the duke of Chartres, he was educated at the college of Henry IV., where he distinguished himself by cordiality and simplicity of manners and by scholarship. In 1825 he was appointed by Charles X. colonel of the first regiment of hussars, and was in garrison at Joigny when he heard the news of the outbreak of July, 1830, upon which he hastened to Paris at the head of his regiment. Being now, by the election of his father to the throne, duke of Orleans and prince royal, he went through France to distribute the new colors to the departments, made use of his popularity to suppress the insurrectionary troubles at Lyons in 1831, and in 1832 during the prevalence of the cholera visited the sick in the hospitals in company with Casimir Périer. He served in Belgium under Marshal Gérard, led the advanced guard of the French army, and had a share in the siege of Antwerp. In 1835 he repaired to Algeria, fought several battles with the Arabs, was wounded on the banks of the Habrah, and entered the town of Mascara with the triumphant army under Marshal Clausel. During the summer of 1836 he visited several courts of Germany, and there became acquainted with Helena of Mecklenburg-Schwerin, whom he married, May 30, 1837. Two years later he went again to Africa, and led one of the divisions of the army which, under Marshal Valée, forced the defile of Bibans or the Iron Gates. In 1840 he commanded the expedition against the province of Tittery, routed near Lake Kalloolah the tribes headed by Ben Salem, forced the Teniah or pass of Mouzaiah, defended by Abd el Kader himself, carried Medeah and Milianah, and thus secured to the French the right bank of the central Shelliff. In 1841 and 1842 he busied himself in improving the condition of the army; he organized the foot chasseurs, who were first named after him, and are now known as *chasseurs de Vincennes*. While preparing for a tour of inspection, he had just taken his wife to Plombières, and was going to Neuilly to pay his respects to his parents before repairing to St. Omer, when his horses became ungovernable, and in jumping from his carriage he fell on the pavement and fractured his skull. He was taken to a neighboring house, where he expired after a few hours. This sudden death sent a thrill of horror through all France, and was followed by public mourning. A chapel was built on the spot where he breathed his last; and two statues have been erected in his honor, one within the Louvre, the other on a square in Algiers. VII. Hélène Louise Élisabeth of Mecklenburg-Schwerin, wife of the preceding, born at Ludwigslust, Jan. 24, 1814, died in Richmond, England, May 18, 1858. The daughter of Prince Frederic Louis, she lost her mother, a princess of Saxony, in 1816, and her father when only 5 years old, and was educated under the supervision of her stepmother.

The brilliant festivities that followed her marriage with the duke of Orleans were saddened by a terrible accident at the Champ de Mars, by which several persons lost their lives. She shared not only the liberal views but the acts of benevolence of her husband. In spite of the antipathy the French generally feel toward foreign princesses, she had already won the affections of the people when her husband was killed. She then devoted herself to the education of her two sons: Louis Philippe Albert, count of Paris, born Aug. 24, 1838, and Robert Philippe Louis Eugène Ferdinand, duke of Chartres, born Nov. 9, 1840. She inspired them with the principles of their father, and tried to make them friends to constitutional liberty. In this she did not entirely please her father-in-law, Louis Philippe, who, a few months after her husband's death, caused a bill of regency to be presented to the two chambers, by which she was deprived of the rights which belonged to her according to previous usages of the French monarchy. She appeared with both her sons in the chamber of deputies on the eventful Feb. 24, 1848, and was on the point of being proclaimed regent when the hall was invaded by the crowd, who demanded more than the mere abdication of Louis Philippe. Amid the dreadful confusion that followed, the princess evinced anxiety only for her sons. She was finally obliged to retreat to the Hôtel des Invalides in company with her brother-in-law the duke of Nemours, then secretly removed to Bligny, and with her two sons succeeded in reaching Belgium in safety. After remaining for a time at Ems, she accepted the hospitality extended to her by her maternal uncle, the grand duke of Weimar, and settled at Eisenach. Here she lived honorably, fulfilling her duties as a mother and a Christian, and maintaining the claims of her eldest son, whom she long cherished the hope of seeing on the throne of France. When she saw his prospects blasted by the success of Napoleon III., disappointment preyed upon her mind; her health failed, and during a visit to her husband's family in England, she breathed her last without perceptible suffering. A collection of her letters has been published, and a memoir of her life translated by Mrs. Austin from the French (8vo., London, 1859).

ORLEANS, Maid of. See Arc, Joan of.

ORLOFF, the name of a Russian family which rose into consequence in the early part of the 18th century, and has ever since played an important part in the history of Russia. I. Ivan, the founder of the family, was one of the corps of strelitzes who in 1689 were induced by the princess Sophia to mutiny against her brother the young czar Peter (the Great). Being included in the sentence of death by which many thousands of his comrades were destroyed, he showed such extraordinary coolness upon the scaffold that he was pardoned, and enrolled in the ranks of the army, where by his bravery he obtained a commission. He adopted the name of Orloff. II. Gregory Grigorievitch, grandson of the preceding, born in 1734, died in Moscow in 1783. He early entered the military service, and became an aide-de-camp of Gen. Shuvaloff, with whose mistress, the princess Kurakin, he had an intrigue which brought him under the notice of Catharine II., then grand duchess, who took him under her protection. Rising rapidly in favor with her, he was instrumental in the deposition of her husband, Peter III., and in establishing her upon the throne, a service which gained him the first honors of the empire, including the title of count, conferred also upon his 4 brothers, who had assisted him. He aspired to the hand of the empress, but was successfully opposed by Razumoffski, Tchernitchef, and other influential men. He then meditated the formation of a kingdom on the Caspian sea, and attempted for his own advantage to establish Greece as an independent state. His fickleness, indiscreetness, and above all his inconstancy, gradually alienated from him the affections of the empress, who, as a means of ridding herself of a discarded favorite, charged him in 1771 with measures for arresting the progress of the plague in Moscow. His courage and devotion in the performance of this duty reinstated him temporarily in the good graces of Catharine, and he began again to indulge in ambitious designs. But during his absence in Wallachia to negotiate a peace with the Turks, he was supplanted by another favorite, and upon his return to St. Petersburg the empress exiled him to the castle of Tzarskoe Selo. He submitted with a good grace, and was rewarded with additional titles and domains. He however never recovered his position at court, but passed the remainder of his life in restless wanderings over Europe, or in vain endeavors to regain the imperial favor. The mortification attending his fall finally produced mental alienation, in which condition he died. He left a son by the empress, who received from the emperor Paul the title of Count Bobrinski. III. Alexei, brother of the preceding, born in 1735, died in Moscow in 1808. He commenced his career in the army, and attracted the favorable notice of Catharine II. by the daring part he played in the deposition of Peter III. in 1762. He was intrusted with the detention of the dethroned czar, and is said to have strangled him in prison with his own hands. His rise after this was rapid, and in 1768 he was appointed admiral of the fleet despatched against the Turks in the Grecian archipelago. By the assistance of a British officer named Elphinston, he gained brilliant successes over the enemy at Tchesme, for which he received many marks of honor from the empress, including the surname of Tchesmenskoi, in the enjoyment of which he remained unmolested until the accession of the emperor Paul. Upon the celebration of the funeral of Peter III. by order of Paul, Orloff was forced to hold a portion of the canopy which covered the remains of the sovereign whom 30 years previously he had aided in deposing and murdering. He was thenceforth exiled from court, and passed the remainder of his life in travelling or on his estates. He was a man of striking personal appearance, and possessed immense physical strength. IV. Feodor, brother of the preceding, born in 1741, died in Moscow in 1796. He served in the army, and for various successes against the Turks was raised to the rank of general-in-chief. He left 4 illegitimate sons, by whom the male line of the Orloffs has been continued to the present time. V. Mihail, son of the preceding, born in 1785, died in 1841. He was an aide-de-camp of Alexander I., with whom he made the campaign of 1814, and participated in the negotiations resulting in the capitulation of Paris. The latter years of his life were passed on his estates. VI. Alexei, brother of the preceding, born in 1787, entered the army at an early age, and, after participating in the campaigns ending with the peace of Paris in 1814, became aide-de-camp to Alexander I., and colonel of a regiment of horse guards. During the formidable insurrection in St. Petersburg which followed the accession of Nicholas (1825), he manifested the utmost fidelity to the new emperor, and the energy of his movements and the loyalty of his troops contributed much to crush the rebels and to establish Nicholas on the throne. He was rewarded with the confidence of his master, bestowed during a period of 30 years, in a larger degree than upon any other subject; for which he evinced his gratitude by an unwavering devotion to the interests of the imperial family. He was made a count, appointed adjutant-general, and in 1828 fought against the Turks. In the following year he negotiated the peace of Adrianople, gaining much reputation as a diplomatist, and during the Polish insurrection of 1830–'31 he was commissioned to supervise the operations of the Russian generals in Poland. The sudden deaths of Marshal Diebitsch and the grand duke Constantine, shortly after his arrival, were attributed by popular rumor to poison, administered, as Louis Blanc nsinuates in his "History of Ten Years," by Orloff, or under his direction. No just grounds for these suspicions, however, are believed to exist, the marshal and grand duke having in all probability been carried off by the cholera, which was then raging in eastern Europe. His next important service was the negotiation of the treaty of Unkiar-Skelessi between Rusia and Turkey, by which the latter agreed to lose the Bosporus and Dardanelles against all hips of war except those of Russia. In 1835 he attended the coronation of the emperor Ferdinand of Austria as Russian envoy; and in ll the visits of Nicholas to European courts he was his constant companion. Since 1844 he as had charge of the secret police of Russia, nd has managed this vast system with an enrgy and skill which have caused him to be regarded as one of the most formidable personages in the empire. In Jan. 1854, he was sent to Vienna to secure the support of Austria, or at least her neutrality, in the war with Turkey and her allies, but returned to St. Petersburg without having succeeded in either object. Since the death of Nicholas he has exercised an equal influence in the councils of his successor, Alexander II., although he probably does not sustain such intimate personal relations with him. In 1856 he represented Russia at the congress of Paris in the capacity of first plenipotentiary, and aided in negotiating the treaty of March 18, after which he was appointed by the emperor president of the grand council of the empire, a position which he still holds. He is also a prince of the empire, and has received the most important orders of the principal European sovereigns. He is a man of commanding presence and great muscular strength, of quiet deportment, and simple and elegant manners, and during his diplomatic mission to Paris was by far the most observed man in the congress.

ORME, Robert, an English author, born in Travancore, Hindostan, in 1728, died in Ealing, England, Jan. 13, 1801. He was educated at Harrow, began life in a counting-house, and in 1742 went to Calcutta in the East India company's civil service. In 1758 he returned to England, settled in London, and employed himself in writing a "History of the Military Transactions of the British Nation in Indostan from the Year 1745" (2 vols., 1763–'78), extending to the peace of 1763. The East India company appointed him their historiographer, with a salary of £400 a year, and he was elected a fellow of the society of antiquaries in March, 1770. He also published "Historical Fragments of the Mogul Empire from the Year 1659" (8vo., London, 1782), and left "A General Idea of the Government and People of Indostan" and "Origin of the English Establishments at Broach and Surat," both of which appeared after his death, together with the "Historical Fragments" and a life of the author (4to., 1805).

ORMOLU (Fr. *or*, gold, and *moulu*, ground, rubbed), a name given by the French to a peculiar color applied to bronze after it has been gilded. The method of producing it is as follows: The gilded articles are first rubbed with the scratch-brush, not so hard as is practised for burnishing, and then they are exposed to a more moderate heat than that employed in deadening. When partially cooled, a mixture of finely pulverized hematite, alum, and sea salt in vinegar is laid on with a brush, the burnished parts being left untouched. The pieces are then heated upon burning coals till they are hissing hot, and the color begins to change to brown. They are then plunged into cold water, washed and rubbed with a brush wet with vinegar, or, if the work is chased, with dilute nitric acid instead of vinegar. Finally they are washed with pure water and dried by a moderate fire.

ORMOND, JAMES BUTLER, duke of, lord lieutenant of Ireland, born in London in 1610, died at Kingston hall in Dorsetshire, July 21, 1688. His wardship having been claimed by King James, he was committed to the instruction of Archbishop Abbot, from whom he derived a strong affection for the principles of the Protestant religion. In 1629 he married his cousin Lady Elizabeth Preston, a union which healed dissensions that had hitherto existed between the two branches of the family. In 1632 he succeeded his grandfather as earl of Ormond. His abilities attracted the attention of Wentworth (afterward Lord Strafford), then lord lieutenant of Ireland, who predicted that "that young nobleman would make the greatest man of his family." When the Irish rebellion broke out in 1640 he was chosen commander of the royal troops, and repeatedly repulsed the rebels; but being ill supported he was forced to make terms of peace which created much dissatisfaction in England. He was, however, raised to the dignity of marquis by Charles I. and made lord lieutenant of Ireland in 1644; but after the success of the parliamentary party, he resigned his office and retired to France. Returning to Ireland, he attempted to restore the royal power, caused Charles II. to be proclaimed, and made an unsuccessful effort to capture Dublin. Cromwell passing over into Ireland, Ormond again withdrew to France, where he remained until the restoration, at which time he was raised by Charles II. to a dukedom. He was again lord lieutenant of Ireland in 1662, and held the office 7 years. In 1670, while riding in his carriage in London, he came near being assassinated by Col. Blood and 5 accomplices; and upon Charles sending to him and begging him to forgive the ruffian, then confined in the tower for a subsequent attempt to seize the king's regalia, Ormond answered "that if the king could forgive the offender for stealing his crown, he might easily forgive the attempt upon his life; and that if such was his majesty's pleasure, that was for him a sufficient reason." So convinced was Ormond's son, the earl of Ossory, that Buckingham, his father's bitter enemy, had instigated this attack, that he told that nobleman in presence of Charles, that if his father were assassinated, he should consider him guilty of it, and pistol him, even though he stood behind the king's chair. In 1676 Ormond was again appointed lord lieutenant of Ireland, and held the office until 1685. He survived "the gallant" earl of Ossory 8 years, saying in regard to him that "he would not exchange his dead son for any living son in Christendom." Ormond's life and the history of his Irish administration was written by Thomas Carte (3 vols. fol., London, 1735–'6; new ed., 6 vols., Oxford, 1851).

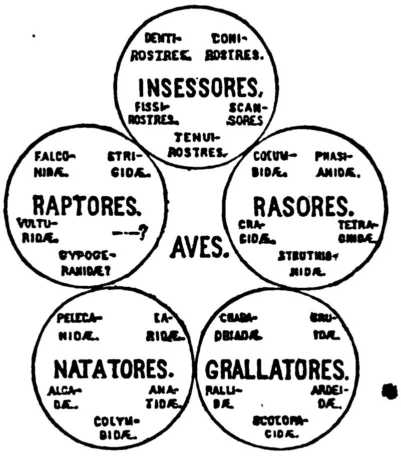
ORMUZ, or HORMUZ, an island in the Persian gulf, near its entrance on the N. side, in lat. 27° 5′ N., long. 56° 29′ E., 10 m. from the Persian coast, about 15 m. in circumference; pop. 800. It is a mass of hills, composed of rock salt and sulphur, entirely destitute of vegetation, and containing both iron and copper ore. On the N. side are the ruins of a town which once had 40,000 inhabitants, and was a place of great trade. Albuquerque took possession of it in 1507, but the Persians, assisted by the English, expelled the Portuguese in 1622. The Persian monarch transferred the trade to Gombroon, on the opposite coast, and ordered the inhabitants to evacuate the place. About the close of the last century the imam of Muscat took possession of the island. Rock salt is prepared by the inhabitants, from which the imam derives a revenue.

ORMUZD, the supreme deity of the ancient Persians and their descendants, the Parsees and Guebres. He is the god of the firmament, the representative of goodness and truth, and the creator of the universe and of the beneficent spirits who have charge of the well being of man and all created things. According to Zoroaster, an incomprehensible being named Zeruane Akerene, the eternal one, existed from all eternity; from him emanated primeval light, and from the latter sprang Ormuzd and Ahriman or Arimanes. Ahriman became jealous of his elder brother, and was condemned by the eternal one to pass 3,000 years in a region of utter darkness. On his release he created a number of bad spirits to oppose the spirits created by Ormuzd; and when the latter made an egg containing good genii, Ahriman produced another full of evil demons, and broke the two together, so that good and evil became mixed in the new creation. The two great opposing principles are called the king of light and the prince of darkness. Ormuzd is described as "sitting on the throne of the good and the perfect in regions of pure light," or as a venerable man seated on a bull, the emblem of creation. (See GUEBRES, and MYTHOLOGY, vol. xii. p. [illegible])

ORNE, a N. W. department of France, in the old province of Normandy, bounded N. by Calvados and Eure, E. by Eure-et-Loir, S. by Sarthe and Mayenne, and W. by La Manche; area, 2,355 sq. m.; pop. in 1856, 430,127. The chief rivers are the Orne, Touque, Rille, Eure, Sarthe, Hutne, and Mayenne; there are a great number of ponds and marshes. The soil is sandy and unproductive, except in the valleys. Iron, plumbago, and granite are produced. Hemp, fruit, cattle, and poultry are raised for the Paris markets; needles, linens, cottons, and lace are manufactured. Capital, Alençon.

ORNITHICHNITES. See FOSSIL FOOTPRINTS, vol. vii. p. 628.

ORNITHOLOGY (Gr. ὄρνις, bird, and λόγος, discourse), the department of zoology which treats of the structure, habits, and classification of birds, the 2d class of vertebrated animals. Their structure having been given under BIRDS, and their habits under their separate titles, this article will be restricted to the history and principles of their classification. Among the many methods, more or less natural, which have been presented in the history of ornithology, such only can be introduced here as have advanced the science or have been celebrated in their day. Until after the first quarter of the 19th century most ornithologists classified birds according to the characters of the bill and feet, as expressed in the slightly varied names of the orders; since that time several continental authors, especially Oken, Nitzsch, Sundevall, Müller, Cabanis, Bonaparte, and Burmeister, have drawn attention to the care they take of their young, the song and the vocal muscles, the number and length of the quills, the scales and feathers on the legs, the number of tail feathers, the position of the hind toe, and the absence, presence, and extent of the webs, as data for the basis of a natural classification.—Aristotle, in the 3d chapter of his 8th book on animals, mentions the modes in which birds subsist, stating that some are carnivorous, others granivorous, and others omnivorous; that some are terrestrial and others aquatic, and many migratory during winter; he enumerates the names of the species then known, without descriptions except for the eagles. Pliny notices many species, but neither describes nor classifies them.—Belon, the reviver of natural history, in his *Histoire naturelle des oiseaux* (fol., Paris, 1555), classed birds by their habits and places where they are found, making the 4 divisions of birds of prey, waders, swimmers, and birds which nestle in trees or on the ground; his work is illustrated with numerous woodcuts. Gesner, of Zürich, in his *Historia Animalium*, lib. III. (1555), gives a history of birds, with a copious index and full references. Aldrovandus, in his *Ornithologia* (Bologna, 1599), follows Belon in classifying birds according to their places of habitation and the nature of their food, but adds a great number of new descriptions. Johnston (*Historiæ Naturalis de Avibus libri VI.*, Amsterdam, 1657) gives a condensed compilation of all that had been observed up to his time. The work of Willughby (*Ornithologiæ libri tres*), published at London under the superintendence of Ray in 1676, was the first systematic attempt at classifying birds; in this the land birds are divided into two groups, one having curved beak and talons, the other with the bill and claws more nearly straight; the water birds are also subdivided into waders and swimmers; there are in this work 78 folio copperplate illustrations. Ray, in the *Synopsis Methodica Avium* (8vo.), published in 1713 after his death, made some improvements upon Willughby's system; and these two furnished the basis of the classification adopted half a century later by Linnæus.—Linnæus, in the 12th edition of the *Systema Naturæ* (1766), divided the class nto 6 orders: I. *Accipitres* or birds of prey; with the bill bent, and the upper mandible diated on each side or armed with a tooth; legs short and robust, toes warty, and claws curved and sharp. II. *Picæ*, with bill convex or rounded above and edged on the lower part; legs short and robust, but with smooth toes. III. *Anseres* (swimmers), with bill smooth, covered with an epidermis, and thickened at its point; feet with palmated toes. IV. *Grallæ*, with bill almost cylindrical, thighs half naked, and legs formed for wading. V. *Gallinæ*, with bill convex, and the upper mandible arched over the under; feet formed for walking, and the toes rough below. VI. *Passeres*, with bill conical and pointed, legs formed for hopping, and toes slender and divided. In ornithology Linnæus deserves the same credit as in the other departments of zoology, for his excellent determination of genera and his admirable system of binomial nomenclature.—Brisson, in his *Ornithologia* (4to., Paris, 1760), describes about 1,300 species of birds, arranged in 26 orders and 115 genera, whose characters are drawn from the toes and their membranes, the bill, and feathers of the legs; the descriptions are minute and accurate, and illustrated by numerous copperplate engravings. Schaeffer in 1774, in his *Elementa Ornithologica*, divided birds, according to the feet, into the families *nudipedes* and *plumipedes*, as Brisson had into *fissipedes* and *palmipedes*. Scopoli, in his *Introductio ad Historiam Naturalem* (1777), adopted the divisions of *retipedes*, having the skin of the legs divided by small polygonal scales, and *scutipedes*, having the fore part of the legs covered with unequal segments terminated on each side in a longitudinal furrow.—Latham, in his "General History of Birds" and "Supplements" (1781-1801), in his *Index Ornithologicus* (1790), and in his "Synopsis" (10 vols. 4to., Winchester, 1821-'8), was the next writer of importance on general ornithology. In the last work he divides land birds into orders: I., rapacious or accipitrine, with 4 genera and 368 species; II., pies (like the shrikes, crows, creepers, humming birds, parrots, toucans, cuckoos, woodpeckers, and kingfishers), with 32 genera and 1,320 species; III., passerine (finches, swallows, goatsuckers, thrushes, flycatchers, and starlings), with 17 genera and 1,444 species; IV., columbine or pigeons, with a single genus and 136 species; V., gallinaceous (turkeys, pheasants, grouse, bustards), with 12 genera and 210 species; VI., struthious (dodo, emu, and ostrich), with 4 genera and 8 species. He divides the water birds into orders: VII., waders, with cloven feet (herons, ibis, snipe, sandpiper, gallinule), with 20 genera and 455 species; VIII., with pennated feet (coots and grebes), with 4 genera and 29 species; and IX., web-footed (flamingo, albatross, gull, duck, penguin), with 17 genera and 359 species. He thus makes in all 111 genera and 4,324 species, of which many are ill determined and improperly made. Pennant, in his "Arctic Zoology" (1785), and Lewin, "Birds of Great Britain and Ireland" (1795-1801), adopt the system of Latham.—The abbé Bonnaterre (*Encyclopédie méthodique*, 1790) divides birds into 12 classes and 112 genera, according to the form of the bill and other minor distinctions; his system was afterward enlarged by Vieillot.—Lacépède in 1799 (*Histoire naturelle*) divided birds into 2 sub-classes. Sub-class I. (having the legs feathered, and no toes completely united by wide membranes) contains divisions: 1, with 2 toes in front and 2 behind, large and strong, the climbers (*grimpeurs*), with 6 orders and 12 genera; and 2, having 3 toes in front and one or none behind, with the 1st subdivision of birds of prey, with strong and curved claws, embracing a single order and 10 genera; 2d subdivision, having the external toes free or united only along the 1st phalanx (*passereaux*), with 8 orders and 36 genera; 3d subdivision, having the external toes united for almost the whole length (*platypodes*), like the hornbill, kingfisher, and bee-eater, with 5 orders and 7 genera; 4th subdivision, having the anterior toes united at the base by membrane (*gallinacés*), with a single order and 12 genera. Sub-class II. (the legs without feathers, or with many toes united by a wide membrane) contains division 1, with 3 toes in front and one or none behind, with 1st subdivision, having the anterior toes united by membrane (water birds, ducks, &c.), embracing 6 orders and 17 genera; 2d subdivision, with all 4 toes united by a wide membrane (*oiseaux d'eau latirèmes*), like the cormorant and pelican, having 3 orders and 6 genera; and 3d subdivision, having the toes united at base by membrane (shore birds), with 7 orders and 26 genera; and division 2, with 2, 3, or 4 very strong toes, not united at base by membrane (*cursores*), like ostrich and dodo, with 2 orders and 4 genera—in all, 39 orders and 130 genera. Duméril (*Zoologie analytique*, 1806) reduced the orders to 6, *rapaces*, *passereaux*, *grimpeurs*, *gallinacés*, *échassiers*, and *palmipèdes*, with 28 families.—Blumenbach, in his "Manual of Natural History" (1807), made 9 orders. A. Land birds: I., *accipitres*; II., *levirostres*; III., *pici*; IV., *coraces*; V., *passeres*; VI., *gallinæ*; VII., *struthiones*. B. Water birds: VIII., *grallæ*; IX., *anseres*. Shaw, in his "General Zoology" (1809–'12), adopted the 6 orders of Linnæus; but Mr. Stephens, in his continuation of the work, admitted many of the modifications of Mr. Vigors's system (mentioned below). Meyer and Wolff (*Almanach des oiseaux de l'Allemagne*), in 1810, made the 11 orders of *rapaces*, *coraces*, *pici*, *alcyones*, *oscines*, *chelidones*, *columbæ*, *gallinæ*, *cursores*, *grallæ*, and *natatores*; this seems to be the first work in which the terms *oscines*, *alcyones*, and *chelidones* are applied to the orders of birds. Illiger (*Prodromus Systematis Mammalium et Avium*, 1811) gives the 7 orders *scansores*, *ambulatores* (including the 2d, 4th, 5th, and 6th orders of Meyer), *raptatores*, *rasores* (including gallinaceous birds and pigeons), *cursores* (ostrich, bustard, plover), *grallatores*, and *natatores*, with 41 families and 147 genera. —Cuvier (*Règne animal*, 1817) preserved the 6 orders of Linnæus, founded on the characters of the beak and feet, except that he substituted the previously used term of *scansores* for those of the *picæ* which have 2 toes before and 2 behind, placing the remainder among the *passeres*. His orders are: I., *accipitres*, divided into diurnal (hawks, &c.) and nocturnal (owls); II., *passeres*, divided into tribes *dentirostres* (like shrikes), *fissirostres* (swallows and goatsuckers), *conirostres* (crows, buntings, and starlings), *tenuirostres* (humming birds), and *syndactyli* (kingfishers); III., *scansores* or climbers (woodpeckers and parrots); IV., *gallinæ*, or birds resembling the domestic cock; V., *grallæ* or waders, divided into *brevipennes* (ostrich), *pressirostres* (bustards), *cultirostres* (cranes), *longirostres* (ibis, curlew, snipe), and *macrodactyli* (rail, jacana); VI., *palmipedes*, divided into *brachypteri* (penguins and grebes), *longipennes* (terns and petrels), *totipalmes* (pelicans), and *lamellirostres* (ducks). This is essentially followed in the article "Ornithology" of the "Encyclopædia Britannica," and by Milne-Edwards (1[illegible]). —Vieillot in 1817, and in the article *Ornithologie* of the *Nouveau dictionnaire d'histoire naturelle*, made 5 orders: I., *accipitres*, diurnal and nocturnal, with 4 families; II., *sylvicolæ*, with 2 tribes, *zygodactyli* and *anisodactyli*, equivalent to the climbing and passerine birds of other authors, with 30 families; III., *gallinæ*, with families *nudipedes* and *plumipedes*; IV., *grallatores*, with the tribes *di-tridactyli* and *tetradactyli*, with 15 families; and V., *natatores*, with the tribes *teleopodes*, *atelopodes*, and *ptilopteri*, with 7 families.—Temminck (*Manuel d'ornithologie*, 2d ed., Paris, 1820–'40) modified the systems of Meyer, Illiger, and Latham, and made 16 orders, comprising [illegible] genera. His orders are: I., *rapaces* or birds of prey; II., *omnivores* (crows, rollers, starlings); III., *insectivores* (thrushes, shrikes, flycatchers, warblers); IV., *granivores* (larks, buntings, finches); V., *zygodactyli* (cuckoos, toucans, parrots, woodpeckers); VI., *anisodactyli* (creepers and humming birds); VII., *alcyones* (bee-eaters and kingfishers); VIII., *chelidones* (swallows and goatsuckers); IX., *columbæ* or pigeons; X., *gallinæ*; XI., *alectorides* (agami); XII., *cursores* (ostrich and bustard); XIII., *grallatores* or waders; XIV., *pinnatipedes* (coots and grebes); XV., *palmipedes*, swimmers; XVI., *inertes* (apteryx and dodo). This is followed by Naumann in his *Vögel Deutschlands* (13 vols. 8vo., Leipsic, 1820–'44), and is adopted in Stark's "Elements of Natural History" (Edinburgh, 1828).—De Blainville (1[illegible]) called birds *pennifera*, and made the 9 orders of *prehensores* (parrots), *raptatores*, *scansores*, *saltatores* (*passeres*), *sponsores* (pigeons), *gradatores* (*gallinæ*), *cursores*, *grallatores*, and *natatores*. Beside this system, founded on the characters of the legs and feet, he proposed another, developed by L'Herminier in 1827, based on the anatomical peculiarities of the sternum or breast bone. (See *Annales de la société Linnéenne de Paris*, vol. vi.) This is interesting as illustrating several obscure points in the structure of birds, and as furnishing many secondary characters useful in classification. He makes 2 sub-classes: I., normal birds, in which the sternum is provided with a crest more or less developed, and with the 3 bones in the shoulder distinct and simply in contact, including 34 families of ordinary birds, from the hawks to the penguins; II., abnormal birds, in which the sternum is formed of 2 pieces, originally separated, united on the median line into a single plate, of various forms, but always without bony crest or keel; the shoulder bones, distinct in the young, are consolidated in the adult; this includes the single family of *cursores* (ostriches). Latreille (1825) divided the terrestrial birds into the orders *rapaces, passereaux, grimpeurs, passerigalles* (pigeons and guans), and *gallinacés*, and the water birds into *échassiers* and *palmipèdes*, describing 252 genera.—Lesson (*Manuel d'ornithologie*, Paris, 1828), though in his text he adopts the system of Cuvier, gives another in his introduction, as follows: Section I., terrestrial birds, with the orders: 1, *insessores;* 2, *passerini;* 3, *rapaces;* 4, *rasores;* and 5, *heterosoma* (ostriches). Section II., aquatic birds, with the orders: 6, *grallatores;* 7, *pinnatipedes;* 8, *natatores;* and 9, *paradoxaux* (including the genus *ornithorhynchus*, now universally recognized as a mammal). Straus-Durckheim (*Traité d'anatomie comparative*, Paris, 1843) adopts the 6 orders of Cuvier, adding a 7th, *nyctériens*, for the nocturnal birds of prey. Gray ("Genera of Birds," 4to., London, 1844–'9) makes the system of Cuvier the basis of his classification, separating, however, the *columbæ* as an order from the *gallinæ*, and the *struthiones* from the *grallæ*, forming 8 orders with 49 families.—The famous quinary system of classification was for many years in vogue in England, and exerted considerable influence upon ornithology by calling attention to many affinities and analogies previously overlooked. Macleay, its founder (*Horæ Entomologicæ*, London, 1819–'21), assumes that all animals of a group must be analogous to those of every other group, beside forming a circle in themselves; and he therefore arrays them in circles and groups so as to bring out external analogies, without much regard to structural affinity. Vigors ("Transactions of the Linnæan Society of London," vol. xiv., 1825), following out his quincuncial and circular arrangement of affinities, adopts the 5 orders of *raptores, insessores, rasores, grallatores*, and *natatores*, characterized respectively by their feet adapted for tearing, perching, scratching, wading, and swimming. These 5 groups, which he arranges as circles, are connected together as follows: the *raptores* to the *insessores* by the owls of the former and the goatsuckers of the latter, the immediate passage being made by the Australian genus *podargus* (Cuv.); the pigeons are intermediate between the perching and gallinaceous birds, but belong essentially to the latter, and these orders come nearest together at the insessorial plantain eaters and the rasorial curassows; the passage from the gallinaceous birds to the waders seems to be between the bustards of the former and the genera *œdicnemus* (Cuv.) and *psophia* (Linn.) of the latter; the passage from the waders to the swimmers is by the coot (*fulica*, Linn.) of the former and the Australian goose (*cereopsis*, Lath.) of the latter; the swimmers are brought back to the *raptores* by the frigate bird (*tachypetes*, Vieill.) of the former, and probably some of the *gypogeranidæ* of the latter. The affinities are thus represented (*op. cit.*, p. 509):



Each of these 5 tribes in each of the 5 orders is capable of being again subdivided into 5 families, which may be arranged in circles similarly connected. Swainson (Lardner's "Cabinet Cyclopædia," vol. xiii., 1837) adopts the same 5 orders and the general quinary arrangement, and expresses the analogies existing between birds and mammals in the following tabular form:

1. Typical.	*Insessores.*	Prehensile.	*Quadrumana.*
2. Sub-typical.	*Raptores.*	Carnivorous; retractile claws.	*Feræ.*
3. Aquatic.	*Natatores.*	Feeding and living in the water.	*Cetacea.*
4. Suctorial.	*Grallatores.*	Jaws much prolonged.	*Glires.*
5. Rasorial.	*Rasores.*	Domestic; feet for walking.	*Ungulata.*

He connects the 1st and 2d, 3d and 4th, and 4th and 5th orders by the same tribes as does Vigors; but he is inclined to connect the 2d with the 3d by the *dididæ* (dodo), which he places erroneously near the vultures, instead of the *gypogeranidæ*, which he considers either the grallatorial or possibly the rasorial type of the *raptores*; he connects the 5th with the 1st by the *megapodidæ* instead of the curassows. According to the principle of these systems, birds are connected on the one hand with reptiles through the pterodactyle, and on the other with mammals through the ornithorhynchus and the ostrich. Though these affinities cannot be made the basis of a natural classification, they are interesting, ingenious, and to some extent philosophical.—The first and most learned of the German physiophilosophers, Oken, in various works from 1809 to 1843, published his system of classification, in which birds are called ear animals, in the division according to the senses, because in them for the first time the external auditory meatus as well as the cochlea is exhibited in perfection; birds are also nerve animals, in the anatomical division, as they have a complete nervous system with cerebrum and cerebellum. They belong to his 2d province, of *sarcozoa*, 4th circle or flesh animals, and 12th class or *otozoa* or *neurozoa*. They are the first encephalic animals, as the brain defines the head, which is here for the first time freed from the trunk and placed upon a long neck far removed from the thorax, hence also called cervical animals; the caudal vertebræ, on the contrary, are less than in other classes. Birds are capable of instruction, affection, imitation, gratitude, and other mental manifestations not seen in reptiles and fishes. They are the closest repetition of insects, the thorax predominating over the rest of the body, with large respiratory muscles; their lungs are a cluster of insect tracheæ, full of foramina through which air penetrates all over the body, as in insects; the intestine lies in the air, and the bird to a certain extent breathes from it; the whole bird is lung, and its body a thoracic cavity, as the latter is a sexual cavity in the fish and an abdominal cavity in the reptile; the food is crushed in a muscular stomach, as in insects; a bird is an insect with fleshy limbs, and a feather is an insect's wing. With the bird, for the first time, the voice proper breaks forth; "the bird speaketh the language of nature." Swainson (*op. cit.*) expresses the same idea, when, after stating that the typical characters of each are a body furnished with wings, he says: "Birds are the butterflies of the vertebrated animals, not merely in the imagery of poetry, but in the sober language of science." In Oken's "Physiophilosophy" (Ray society edition, London, 1847) are given two great divisions of birds, according as the young require to be fed by the parents or not, the former being the lowest; this principle of division, first published in 1821, has retained its place in ornithological science, and lies at the base of the systems now generally followed in Europe and in this country. His divisions are: A. Splanchnic birds, which remain in the nest and are fed, with short neck and feet, 4 ununited toes, and pointed beak. In this division are the orders: I. Protozooid birds (*tenuirostres*), some of them very small, insectivorous, slender-formed, with awl-shaped bill and brilliant plumage, employing feet and tail in climbing; with families: 1, infusorial birds (humming birds and creepers), the bill bringing to mind the proboscis of insects; 2, polypary birds or woodpeckers; 3, acalephan birds or cuckoos. II. Conchozooid birds (*conirostres*), perchers, granivorous, with powerful bill and muscular gizzard; with families: 4, mussel birds or sparrows; 5, snail birds or crows; 6, kraken birds or parrots. III. Ancylosozoid birds (*dentirostres*), with families: 7, worm birds, *cantores* or songsters; 8, crustacean birds or flycatchers; 9, ptilotoid birds (*rapaces*). B. Sarcose birds, which run about soon after being hatched, feeding themselves; the bill is obtuse in most; they are good walkers, runners, or swimmers, and some are good fliers. This division contains the orders: IV. Sarcose birds, with long neck, comprising the families: 10, fish birds (*natatores*), approximating to fishes in the webbed and posteriorly inserted feet, closely set plumage, and swimming, diving, and fish-catching habits; 11, reptilian birds (*grallæ* or waders), with very long neck, bill, and legs, "having a frog's body, with its long feet, and a serpent's neck with a tortoise's head;" 12, typical birds (*gallinæ*). V. Sensorial birds, unable to fly, with family 13, thricozoid birds (bustard, cassowary, and ostrich), having mammalian affinities. Fitzinger's classification (1843) is based upon this of Oken. Carus (1818–'28), in his *Traité d'anatomie comparée*, ranks birds in his 6th class or *cephalo-thoracozoa*, characterized by great development of the respiratory organs. He makes the orders: I., *natantes*, having relations with reptiles, especially such of its members as fly poorly or not at all (like the penguins); II., *vadentes* or waders; III., *prendentes*, with the sub-orders *rapaces*, *passeres*, *scansores*, and *gallinæ*; and IV., *incedentes* or struthious birds, having relations to mammals. Ehrenberg (1836) ranks birds as the 2d and last class of the *nutrientia* or animals which take care of their young; this division is not strictly natural, as some reptiles and fishes have a care for their progeny. Without accepting the theory of progressive development which seems naturally to arise from the system of the great German physiophilosopher, much that is valuable in the way of anatomical and physiological relation has been suggested by his researches.—The embryological systems of classification next deserve attention. The eggs of birds have generally been selected for investigations in embryology, and, under the examination of Döllinger, Von Baer, and Pander and D'Alton, have furnished most important discoveries; the unity of anatomical structure in all vertebrates is confirmed by the common structure of the primitive egg, and the order of classification from anatomical evidence by the metamorphoses which each class undergoes to its full development. The bird goes through its fish-like and reptilian structure and form; the only difference between the egg of a bird and a mammalian ovum, as to external covering, is that the former has a hard shell when laid protecting the immature chick, while in the latter the envelopes remain membranous, having a peculiar connection with the maternal body which is not severed until the birth of the young. Von Baer (1828) places birds in his doubly symmetrical type, whose embryos acquire an allantois, but have no umbilical cord, aving wings and air sacs. Van Beneden (1845) anks birds as the 2d class of his *hypocotyle-ones* or hypovitellians, in which the vitellus nters the body from the ventral side; he makes he orders *psittaceæ*, *rapaces*, *passeres*, *columbæ*, *allinæ*, *struthiones*, *grallæ*, and *palmipedes*. ogt (*Zoologische Briefe*, 1851) makes two eries of birds: I., *insessores*, with orders *coumbæ*, *oscines*, *clamatores*, *scansores*, and *raptaores*; and II., with orders *natatores*, *gralla-ores*, *gallinaceæ*, and *cursores*. Prof. Agassiz "Proceedings of the Boston Society of Natural istory," vol. iii. p. 42, 1848, and 12th "Lecure on Embryology," Boston, 1849) gives the esults of some observations on the structure f the bird embryo, from which it appears that he limbs are not at first developed in the form hich is to be permanent; the legs and wings re not formed as such, but as fins; in all the rders of birds, with their various powers of ocomotion, the legs and wings are uniformly ebbed like the fins of fishes; in the same maner the primary condition of the heart, lungs, nd other organs of a bird is that of these orans in a fish. This would indicate that the eb-footed birds are lower in the scale than hose with divided toes; and that the union of ll the former into one group, however different he structure of their wings, plumage, and interal organs, and their mode of life—the almost ingless penguin with the swift-flying ocean irds, the hook-beaked predaceous gulls with he flat-billed and timorous ducks—must be an mnatural arrangement. In the words of this ecture: "It is probable that we shall soon see rearrangement of the class of birds, which ill be classified on other grounds, and leave n each group some swimming types and some ypes with divided fingers, which may be comined by some higher characters." The examnation of the feet of an embryo robin, swallow, arbler, and finch, showed all 4 toes directed orward and webbed, while in the mature birds hey are separate, 3 directed forward and one ackward; he found the bill of the immature obin resembling that of a vulturine bird, indiating the comparatively low type of the latter; ndeed some water birds, like *lestris* (hawkull), have a bill very greatly resembling that f the vultures; some birds of prey also resemle water birds in the rudiment of a web beween the toes. He regards birds which have ll their toes directed forward as of a lower ype than those in which one is directed backard, as, for instance, the pelicans and cormoants among water birds, and the swifts (geus *cypselus*, Ill.), among swallows; a similar dea was broached by Sundevall in 1835. In rof. Agassiz's classification, as given in vol. i. f the "Contributions to the Natural History f the United States" (Boston, 1857), birds orm the 7th class of vertebrates, with 4 orders, *atatores*, *grallæ*, *rasores*, and *insessores* (inluding *scansores* and *accipitres*).—Oken apears to have first proposed a classification of irds according as the young are or are not fed by the parents. Sundevall (*Kongl. Vetenskaps-Academiens Handlingar*, Stockholm, for years 1835 and 1843) adopted this principle of division, and made use of the position of the hind toe and the powers of song in his classification. His sections are: A. *Aves altrices*, which nourish their young in the nest, having either the thumb or the external toe turned back and entirely resting on the ground. These comprise the divisions or legions: I. *Volucres* (*passeres* of Cuvier), typical flying birds, with the thumb only turned back, containing the orders: 1, *passeres*, with 4 families; 2, *oscines* (singers), with 28 families. II. *Gressores* or walkers, containing the orders: 3, *macrochires*, with the 2 families of swallows and humming birds; 4, *pici* (woodpeckers), with the outer toe also turned back, having 2 families; 5, *psittaci* (parrots), having the external toe turned back, with a single family; 6, *coccyges*, with scaled tarsi, with 10 families of cuckoos, kingfishers, trogons, &c.; 7, *accipitres*, with 4 families of owls, hawks, and vultures; 8, *pullastræ*, intermediate between the *gallinæ*, cuckoos, and *accipitres*, with 4 families of guans and pigeons. B. *Aves præcoces*, whose young seek their own food soon after birth, having the thumb elevated or absent. III. *Cursores*, runners, with orders: 9, *gallinæ*, with whole tibia feathered, with 4 families of pheasants and grouse; 10, *struthionides*, having wings without feathers, the ostrich family; 11, *alectorides*, having a very small or no thumb, with 4 families of bustards and screamers; 12, *grallæ* (waders), with 4 families of herons, storks, rails, and sandpipers. IV. *Natatores* or swimmers, with the femur and base of tibia included under skin of abdomen, with orders: 13, *gaviæ*, having the thumb free and elevated or wanting, with 2 families of gulls and petrels; 14, *steganopodes* (Ill.), with thumb long, partly elevated, joined by membrane or lobed, with 4 families of pelicans and gannets; 15, *anseres*, having the thumb short and free, with the single family of ducks; and 16, *urinatores*, having the thumb small and free or absent, ejecting their urine forcibly, with 3 families of loons, guillemots, and penguins. Keyserling and Blasius (*Wirbelthiere Europa's*, Brunswick, 1840) make the 6 orders *rapaces*, *scansores*, *oscines* (singing birds), *gallinaceæ*, *grallatores*, and *natatores*.—Though Cuvier long before had drawn attention to the peculiar muscular apparatus of the larynx in true singing birds, and to its inferior development or absence in others, J. Müller (Berlin "Transactions," 1845) first laid stress on its importance as an element in classification; and on this and on corresponding external characters, Cabanis, and after him Burmeister (*Thiere Brasiliens*, *Vögel*, Berlin, 1856), divided the *insessores* into *strisores*, *clamatores*, and *oscines*. According to Cabanis, the fusion of all the scutellæ of the tarsus into a continuous envelope or "boot," without indication of divisions, is the type of the highest bird, and the position of the families and genera in the scale is high according to their approach to it and to the reduction in size of the first quill. Cabanis (*Archiv für Naturgeschichte*, Berlin, 1847) makes the 10 orders of *oscines*, *clamatores* (crying birds, like shrikes, rollers, and kingfishers), *strisores* (having no power of modulating the voice, like swallows and goatsuckers), *scansores*, *columbæ*, *raptatores*, *rasores*, *cursores*, *grallatores*, and *natatores*; the first 4 orders compose a sub-class named *insessores* by Bonaparte in his catalogue of 1842.—Prince C. L. Bonaparte, in his *Conspectus Avium* (Leyden, 1850–'57), and in vol. xxviii. of the *Comptes rendus* of the Paris academy (for Oct. 31, 1858), treats of the classification of birds. In the article in the *Comptes rendus* he gives the following table, in which the two great sub-classes are made with reference to whether the young require or not to be fed by the parents:

Sub-class ALTRICES.	Sub-class PRÆCOCES.
Order I. PSITTACI.	
American……Old World.	
II. ACCIPITRES.	
III. PASSERES.	
Oscines……*Volucres*.	
IV. COLUMBÆ.	
Pleiodi or *inepti* (dodo, &c.)……	……VII. STRUTHIONES (ostriches).
Gyrantes (doves, &c.)……	……VIII. GALLINÆ (gallinaceous birds).
	Passeripedes……*Grallipedes*.
V. HERODIONES (herons)……	……IX. GRALLÆ (sandpipers, &c.).
	Cursores……*Alectorides*.
VI. GAVIÆ (gulls, &c.)……	……X. ANSERES (bill with lamellæ).
Totipalmi……*Longipennes*.	*Lamellirostres*……*Urinatores*……*Ptilopteri*.

He afterward transferred the *urinatores* (or *brachypteri*) from *anseres* to *gaviæ*, and made a separate order of the *ptilopteri* or *impennes*. From this table it will be seen that the dodo and its congeners of the *altrices* represent the ostriches among the *præcoces*, the doves the gallinaceous birds, the herons the sandpipers, and the gulls and pelicans the ducks, &c., each in their respective sub-classes; this parallelism of physiological character in the *altrices* and *præcoces* corresponds, as Prof. Baird remarks in the work mentioned below, to a certain degree with that which prevails between marsupial and placental mammals; and the former should no more be combined in the same order than should the latter.—Van der Hoeven ("Handbook of Zoology," English translation, 1857) makes the following 6 orders: I., *natatores*, with 4 families; II., *grallatores*, with 7 families; III., *gallinæ*, with 8 families; IV., *scansores* or *zygodactyli*, with 7 families; V., *passerini* (*ambulatores* of Illiger and *anisodactyli* of Vieillot), some singers (*oscines*), and others without muscles for song (*clamatores* of Wagner), with 25 families; VI., *raptatores*, with 8 families.—Prof. S. F. Baird ("Pacific Railroad Survey," vol. ix., Washington, 1858) adopts the following classification, chiefly from Keyserling and Blasius, Cabanis, Bonaparte, and Burmeister: orders I., *raptores*; II., *scansores*; III., *insessores*, with sub-orders *strisores*, *clamatores*, and *oscines*; IV., *rasores*, with sub-orders *columbæ* and *gallinæ*; V., *grallatores*, with sub-orders *herodiones* and *grallæ*, the latter with Burmeister's tribes of *limicolæ* and *paludicolæ*; VI., *natatores*, with sub-orders *anseres* and *gaviæ*, the latter with the tribes *totipalmi*, *longipennes*, and *brachypteri*. He gives many details on the divisions into sub-orders, tribes, and families, which, though highly instructive, cannot be introduced here. It may be well to mention, for the sake of comparison, that Burmeister divides the order *insessores* into the sub-orders *clamatores* and *oscines*, the former including *strisores* and *tracheophones* (flycatchers) as tribes. This volume is especially valuable for its copious alphabetical list of authors on ornithology, most of which are accessible to the student at the library either of the Smithsonian institution at Washington or of the academy of natural sciences in Philadelphia.—None of these classifications are entirely satisfactory, and all are more or less unnatural and artificial; it is probable, however, that a true classification may in time be expected from the combination of the anatomical, physiological, and embryological systems, in the direction now industriously followed by the German ornithologists. There is an undoubted relation of the complexity of structure and size of the cerebellum to the complexity of movements; this part of the brain in a gallinaceous bird, with feeble powers of flight, is relatively smaller than in the active birds of prey and other rapid fliers; perhaps this comparison carried out might assist in a natural classification of birds, as the complexity of the cerebral hemispheres of mammals has led, under Owen's researches, to a new arrangement of these highest vertebrates. There is no department of zoology that has been so extensively and elegantly illustrated as that of ornithology; reference may be made to the figures in the works of Sloane, Catesby, Seba, Edwards, Albinus, Brisson, Sepp, Browne, Latham, Pennant, Hardwicke, Bewick, Donovan, Lewin, Shaw, Jardine and Selby, Buffon, Desmarest, Le Vaillant, Temminck, Spix, Vieillot, Rüppell, Audebert, Horsfield, Lesson, Swainson, Gray, Gould; and in America to Wilson, Bonaparte, Audubon, De Kay, Cassin, and Baird; to the "Proceedings of the Zoological Society" of London (descriptions of Mr. Sclater and others), and the various illustrated works, the results of the national expeditions sent out by England, France, the United States, Russia, Holland, &c. Among the magnificent works may be mentioned the 1,008 *planches enluminées* of Buffon (fol., Paris, 1770–'86); the 600 *planches coloriées* of Temminck; Le Vaillant's birds of Africa, parrots, birds of paradise and rollers, promerops, and rare birds of America and India, n all about 570 plates; Edwards's 362 plates of uncommon birds; Vieillot and Audebert's nearly 180 plates of birds of brilliant plumage; Gould's series of the birds of Australia, Europe, the humming birds, trogons, &c.; Audubon's 435 plates in folio of North American birds. America has not produced any original system of classification of birds; but the writings of Nuttall, Wilson, Bonaparte, Audubon, De Kay, Baird, Lawrence, and Cassin have well illustrated the ornithology of this country; many new and beautiful species have been added of late years, which have been figured by Cassin n his "Supplement to Audubon," and by Baird in vol. x. of the Pacific railway report, and vol. ii. of the Mexican boundary survey; the "Proceedings of the Philadelphia Academy" of late years have been rich in descriptions of new species.—Though birds have great facilities for locomotion, they are for the most part restricted within the limits of zoological provinces; while the same species may be found throughout the arctic zone, there is no such identity in the temperate and torrid zones. In the arctic fauna the species are few, but the number of individuals is immense, being mostly aquatic and of dull and uniform plumage; in the temperate fauna there is much greater variety, especially in the climbing, perching, gallinaceous, and rapacious groups; n the tropical fauna the number of species is very great, and the plumage exceedingly briliant. There are probably 6,000 species of birds, of which about five sixths are known. Birds existed on the earth before the present geological epoch, but their remains in a fossil condition are comparatively rare, for several reasons; the absence of comparatively imperishable teeth lessens the probability of finding their fossil traces, and the lightness of their lead bodies would cause them to float, exposng them to be devoured by carnivorous animals, and giving them rarely a chance to settle quietly and unmutilated to the bottom of the sea. The oldest date claimed for birds is the new red sandstone epoch, where in the Connecticut valley Dr. Hitchcock and others have found tracks which they pronounce those of birds. (See FOSSIL FOOTPRINTS, and Dr. Hitchcock's "Ichnology.") The opinion now, however, is general that these tracks were made by reptiles and not by birds or bird-like animals; *a priori*, we should not expect to find birds, warm-blooded and quick-breathing animals, contemporary with the great reptiles, and preceding the marsupial mammals; moreover, their traces are not found in the succeeding jurassic period, which would be an exception to the rule of continuous existence in the vertebrated series; these alleged birds were also waders, whereas we should expect to find the lowest birds, the web-footed, appearing earliest in time; for these and other reasons, and from a more careful examination of the tracks, it may be doubted if any birds existed at the epoch of the new red sandstone. Birds certainly did appear in the cretaceous period; birds of prey have been found in the tertiary and diluvial; *passeres* in the same; *gallinæ*, rare in the tertiary, are abundant in the diluvium; among *cursores*, the genus *rhea* has been found in the caverns of Brazil, and the *dinornis*, *æpyornis*, &c., have been met with in alluvial deposits so superficial as to lead to the belief that they belonged to the present period, having been exterminated, like the dodo, since the creation of man; the *grallæ* are more abundant than the preceding orders in the oldest tertiary, and even extend into the cretaceous; the *palmipedes* are still earlier, and the genus *cimoliornis* (Owen), coming near the albatross, has been found in the chalk of Europe; it is said that feathers and eggs have been obtained from the tertiary of Europe.

ORNITHORHYNCHUS (Gr. ορνις, a bird, and ῥυγχος, a beak), the name of a genus of implacental mammals of the order *monotremata*, which seem to form a connecting link between mammals and birds, and in some respects having affinities even with reptiles. A single species only is described, the *platypus anatinus* (Shaw), or *ornithorhynchus paradoxus* (Blumenb.), the duck-billed platypus of English writers, the water mole of the colonists, and the *mallangong* of the natives; it inhabits the fresh water streams of Australia and New Guinea. It is from 18 to 22 inches from the end of the jaws to the point of the tail, the latter being about 5 inches; the color above varies from ruddy to dark brown, and is whitish below; the jaws are enclosed in a horny sheath, very sensitive, like the bill of a duck, and have 2 horny teeth on each side above and below, flat, rootless, composed of perpendicular horny tubes; the snout is flat and broad, the lower jaw the narrowest and shortest and provided with lamellæ on the sides; the eyes small and brilliant; ears not apparent externally, with an aperture which can be opened or shut at will; the tongue consists of 2 parts, the posterior broad, flat, with soft papillæ and a free process bearing 2 pointed horny teeth, the anterior narrow and covered with upright points longest and sharpest toward the tip; the nostrils are at the end of the upper mandible; cheek pouches are present, and a bulb on the back of the tongue prevents the contents of the mouth from passing into the larynx; the fur is soft and thick, like that of the otter. The legs are short, and the feet 5-toed, webbed, and furnished with strong claws; the fore feet are the strongest, and their loose webs extend beyond the claws; the hind legs are armed with a sharp, conical, bony spur, with a corneous investment, perforated for the passage of a duct communicating with a gland situated on the thigh; the tail is flat, broad, and beset with rigid hairs. As the name of the order imports, the alimentary, urinary, and reproductive organs open into a common cloaca, as in birds; mammary glands are present, which secrete milk for the nourishment of the young, which are born blind and naked; there are no prominent nipples, and the mammary openings are contained in slits in the integument; the beak in the young is short and flexible, adapted for sucking; M. Verreaux (*Revue zoologique*, 1848) states that the young, when they are able to swim, suck in the milk from the surface of the water into which it is emitted by the female. The shoulder bones are unlike those of other mammals, and are intermediate in arrangement between those of birds and reptiles, as stated in the article MONOTREMATA; in many points of the generative system, also, there are ornithic and reptilian affinities. For details on anatomical structure and on the habits, the reader is referred to the work of Meckel on this animal; the article "Monotremata," by Owen, in the "Cyclopædia of Anatomy and Physiology" (vol. iii., 1847); the "Philosophical Transactions" (1802, 1819, 1822, and 1834); "Transactions of the Zoological Society" (vol. i., 1835), and "Proceedings" of the same society for 1859. The extraordinary characters of this animal are such that, when it was first exhibited by Dr. Shaw, it was believed to be a manufactured monster, partly bird and partly mammal, like the half-monkey, half-fish creature which has been exhibited as a mermaid; and it was not until its anatomy was made out by Home, Owen, and Meckel that naturalists would admit it as a true animal. It burrows in the banks of streams, where it passes the day in sleep rolled up like a ball, coming out at dusk and during the night in search of food; it is an excellent swimmer and diver, and feeds upon worms, insects, and small aquatic animals, in the manner of a duck; it walks very well, and climbs trees with facility; the burrows, which have an opening below the water, are sometimes 20 or 30 feet in length, extending upward beyond the reach of inundations; in the highest and dryest part is an enlarged cavity for the nest of themselves and young. It can remain under water only about 7 or 8 minutes at a time; it is cleanly in habit, and fond of warmth and dryness. The young in confinement are playful, and will eat rice and egg, soaked bread, and finely chopped meat; they are, however, rather delicate, and die very soon from want of food; when handled they make ineffectual attempts to bite, but do not use the spurs as weapons of defence or offence; their habits in a state of nature are not very well known. It is ascertained that they do not lay eggs, as was at first supposed, but are true mammals; the fluid secreted by the femoral gland is not poisonous. Though skins of this animal are not uncommon in collections, its skeleton is very rare; they are rapidly disappearing, and no doubt will ere long be added to the extinct or decaying races, like the dodo, dinornis, Irish elk, and apteryx.

OROBIO, BALTASAR, called also ISAAC DE CASTRO, a Spanish physician and controversialist, born early in the 17th century, died in 1687. He was educated in the Jewish religion by his parents (who outwardly conformed to Catholicism), became distinguished in the scholastic philosophy, and was appointed professor of metaphysics in the university of Salamanca. Subsequently he studied medicine, and practised in Seville, where, being accused of Judaism, he was imprisoned and tortured by the inquisition, but persisted in professing himself a Christian. At the expiration of 3 years he was released, resided some time in Toulouse as professor of physic, and then went to Amsterdam, where he made a public profession of Judaism, was circumcised, and took the name of Isaac. In 1684 he published a treatise entitled *Certamen Philosophicum*, directed against the system of Spinoza, as well as against Bredenburg, who had attempted to refute Spinoza. But he is most celebrated for his controversy with Philip Limborch in regard to the relative merits of Christianity and Judaism. Orobio wrote 3 papers against the Christian religion, afterward printed by Limborch, in an account of the dispute, under the title *Amica Collatio cum Judæo.*

ORONTES, a river of Syria, whose name, according to Strabo, was originally Typhon, which was changed to Orontes because a man of that name built a bridge over it. It rises not far from Baalbec in Cœle-Syria, flows toward the N. between the mountain ranges of Lebanon and Anti-Lebanon, and then turning to the W. into the country of Antioch, finally falls into the Mediterranean near lat. 36° N. The Orontes is now called Bahr-el-Asi, "the rebel river," according to Abulfeda, because it refuses to water the fields without the compulsion of water wheels; or according to Burton, "from its occasional violence and windings during a course of about 200 miles in a northerly direction, passing through Homs and Hamah, and finally discharging itself into the sea at Suweidiah near Antioch." The course between Antioch and the sea is remarkable for its great beauty.

OROSIUS, PAULUS, a Spanish presbyter, born about the end of the 4th century in Tarragona, died probably in Africa. After studying in his native country, he went to Africa about A. D. 414 to consult St. Augustine on several points of doctrine then under discussion by the sects of the Priscillianists and Origenists. Here he wrote his earliest work, entitled *Consultatio sive Commonitorium Orosii ad Augustinum de Errore Priscillianistarum et Origenistarum*, to which Augustine replied in the treatise *Contra Priscillianistas et Origenistas Liber ad* *rosium.* In 414 or 415 he set out for Pales- ne, avowedly to complete his studies under t. Jerome at Bethlehem, but really to coun- ract the influence of Pelagius. He soon won e confidence and affection of Jerome, who ortly after attacked the doctrines of Pelagius an anonymous work. In 415 Orosius ar- igned Pelagius for heresy before the tribunal f John, bishop of Jerusalem; but the author- y of Augustine did not stand so high in the riental as in the western church, and the ac- users did not succeed in gaining their case ither on the present occasion or in the appeal ade to the council of Diospolis. Orosius him- elf, having been denounced by John as a blas- hemer, wrote a work entitled *Liber Apologeti- us de Arbitrii Libertate*, in which he defended imself and attacked the doctrines of Pelagius. he capture and sack of Rome by the bar- arian converts to Christianity gave occasion o those who still adhered to the old faith to ay that Christianity had been of more injury han service to mankind. Against this view ugustine had written his work *De Civitate ei;* and at his instance Orosius composed a reatise entitled *Historiarum adversus Paganos ibri VII.* These annals extend from the reation of the world down to the year 417, nd were received with great enthusiasm when hey first appeared. For a long time they ere highly esteemed, but the researches of odern scholars have proved that, with the xception of the concluding portions, they are tterly destitute of historical value. This work as translated into Anglo-Saxon by King Al- red, and of this translation there are 3 edi- ions: one by Daines Barrington with an Eng- ish version (8vo., London, 1773); another by . Thorpe, with an English version (8vo., Lon- on, 1853; published with Pauli's "Life of lfred the Great" in Bohn's "Antiquarian Li- rary"); and another with an English version y Dr. Bosworth (London, 1855). The *editio rinceps* of the history was published in Vienna fol., 1471); but the only edition of any value s that of Havercamp (4to., Leyden, 1738). To his is appended an edition of the *Apologeticus*, hich was first printed in Louvain in 1558. here are other writings which have been enerally ascribed to Orosius, but as yet no dition of his complete works has been pub- ished.

ORPHAT. See Arafat.

ORPHEUS, the reputed author of the Orphic octrines and mysteries, which first appeared n Greece about the 6th century B. C. He as the chief of a circle of poets, embracing lso Linus, Musæus, and Eumolpus, to whom ere attributed various theogonic and mysti- al hymns and poems, developing theologi- al subjects, and inculcating religious con- eptions different from those of Homer and esiod. An ante-Homeric antiquity was as- igned to these apocryphal writings, and they ere received by the Greeks as a sort of divine evelation. From the schools which propagated the Orphic doctrines a series of poems proceeded until about the Christian era, for all of which the same authorship was claimed. The whole literature is usually regarded as embodying a theosophical and mystical movement in the Greek religion, concerning the origin of which there is little certainty. The name of Orpheus does not appear in Homer or Hesiod. He is mentioned by Ibycus in the 6th century as the "renowned Orpheus;" by Pindar as son of Œagrus, one of the Argonauts, and the father of songs; by Hellanicus as the ancestor of both Homer and Hesiod; by Æschylus as leading the trees after him to the sound of his lyre; by Eratosthenes as worshipping Apollo rather than Dionysus (Bacchus); by Euripides as related to the Muses, as charming by his song the rocks, trees, wild beasts, and infernal powers, as connected with the Bacchanalian orgies, as founder of the sacred mysteries, and as living amid the forests of Olympus; and by Aristophanes as one of the oldest poets and the teacher of religious initiations. Plato repeats most of the previous accounts of him, and gives an explanation of the story of his descent into Hades, according to which, since he had not ventured to die, but had contrived to enter their realm alive, and thus transcended the allotted condition of mortal men, the infernal gods showed him only a phantasm of his wife, and moreover caused his death at the hands of women. Though Plato quotes from the collection of Orphic writings, he evidently regarded them as spurious; but he seems not to have doubted the existence of Orpheus or the genuineness of his peculiar theogony. Aristotle, however, held that Orpheus was altogether a fictitious personage, and the works ascribed to him forgeries. Later accounts make him a Thracian bard in the era of the Argonauts, to whom Apollo gave a lyre, in the use of which he was instructed by the Muses, and who on account of the miraculous charm of his song was engaged as one of the Argonauts. On their expedition the power of his lyre held back the moving Symplegadæ, which threatened to crush the ship, lulled the Colchian dragon to sleep, and rendered other important services. On his return he applied himself to the civilization of the rude inhabitants of Thrace, was reputed to have visited Egypt, and according to the legends sought his deceased wife Eurydice in Hades, where the music of his lyre suspended the tortures of the damned, and won back his beloved on condition that he should not look round at her till she reached the upper world. He violated the condition, and saw her vanish from his view. In his despair he treated the Thracian Mænads with contempt, who avenged themselves by tearing him to pieces in their orgies. According to another legend, he perished by the thunderbolts of Zeus (Jupiter). The remnants of his body were gathered by the Muses, and buried at the foot of Olympus, where a nightingale sang above his tomb.—The earliest of the Orphic compositions are now usually ascribed to Onomacritus, who lived at the court of Hipparchus, son of Pisistratus. About the same time the Orphici, or associations of the followers of Orpheus, transformed the Dionysiac worship, giving to it an ascetic and mystical rather than orgiastic character. This worship was further modified, and its influence on the Greek religion increased, by the union of Orphic and Pythagorean societies and doctrines. A decided pantheistic tendency marks the Orphic theology. It has a cosmogony entirely unlike that of the Homeric poems as well as a theory of immortality, founded on metempsychosis, which is deemed foreign to the genius of the Greek religion, and akin to oriental speculations. According to it, Cronos (time) was the first principle, from which proceeded Chaos and Æther. The former was an infinite and shapeless mass, which, in condensing under the influence of the latter, assumed an ovoid form, containing in its centre the cosmical germ. From this primordial germ, this vast mundane egg, sprang the golden-winged Eros or Phanes, the first manifestation of intelligence or light, who in union with Night created the heavens and the earth. Ericapæos was the creative word which gave birth to all the gods. The soul, at first diffused in the depths of matter, was brought to the surface, and all the elements were arranged and prepared for generation. Zeus had four predecessors, instead of one as in the Homeric theogony, and among the gods and goddesses proceeding from him Zagreus Dionysus was preeminent. Rejecting Hesiod's view of successive ages, each worse than the preceding, the Orphic poets cherished faith in a cessation of strife, a holy peace, and a state of the highest beatitude at the end of all things. This hope they rested upon the god Dionysus, who had passed through the greatest perils, had been once torn in pieces by the Titans and born again, yet was destined to succeed Zeus in the government of the world and to restore the golden age. From Dionysus was expected the liberation of souls, in fulfilment of the Orphic notion that souls are confined in the body as in a prison for punishment, and that they long for a higher state of existence, to which they pass by gradual purification and enlightenment. The Orphic poems show the gradual influx of Thracian, Phrygian, and Egyptian religious ceremonies and feelings, when secret voluntary combinations were formed for purposes of religious purification, bound together by mystical solemnities and vows of an ascetic character, and cherishing contemplations and habits strikingly in contrast with the simple, genial, and demonstrative worship of the Homeric Greeks. Thus the so called Orphic life, the regulations of the Orphic brotherhood, among other injunctions of abstinence, forbade animal food universally, and on occasions the use of woollen clothing. The religious and political fraternity of the Pythagoreans, after its banishment from the Italian cities, favored and manifested the same tendency; and thus a new class of ideas and ceremonies, more or less directly of oriental origin, was introduced into the Greek worship. Yet this attempt at reform seems to have obtained currency chiefly among cultivated and speculative men. The Orphic writings increased in honor during the declining centuries of paganism, and by both the Christian and pagan Neo-Platonists of the 3d and 4th centuries were believed to be the most ancient and venerable summary of the Greek faith. They then received a large accession of forgeries by Christian philosophers, the genuineness of all of which was accepted even by modern scholars till a comparatively recent period. The apocryphal productions included under the title of *Orphica* are: a poem on the Argonautic expedition, in 1,384 hexameters; a collection of hymns in hexameters, evidently of Neo-Platonic origin; *Lithika*, better than either of the preceding, and treating the properties of stones and their uses in divination; and fragments, chiefly of the theogony, containing the only remains of the early Orphic literature. The best edition is that of Hermann (Leipsic, 1805).

ORPIMENT. See Arsenic, vol. ii., p. [illegible].

ORR, James Lawrence, an American statesman, born in Craytonville, Anderson district, S. C., May 12, 1822. He received a tolerable education, including the rudiments of Latin and Greek, but until his 18th year was obliged to employ a portion of his time behind the counter of his father, who was a country shopkeeper. In 1840 he entered the university of Virginia, where he was graduated in 1842. He studied law, and in 1843 was admitted to the bar, and commenced practice in Anderson, where he also established and for several years edited the "Anderson Gazette." In 1844 he was elected to the state legislature from the Pendleton district by a large majority, and was returned at the next election by an equally decisive vote. During his second term he spoke in opposition to a proposed nullification of the tariff act of 1842, and in favor of giving to the people at large the election of the electors of president and vice-president of the United States—a right then, as subsequently, exercised by the legislature of the state. Between 1846 and 1848 he devoted himself principally to his profession, and in the latter year he was elected to congress. From that time down to the close of the 35th congress, March 4, 1859, he was regularly reëlected from his district without opposition. During the long debates to which the application of California for admission to the Union gave rise, he opposed the settlement of the questions at issue between the North and the South on the basis of the compromise measures proposed by Mr. Clay, urging that they were unjust to the South; that there was a latent fraud in the organization of Utah and New Mexico; that California was admitted with excessive territories, without regard to the rights, proprieties, and decencies which had previously prevailed in the admission of states, and without waiting for authority from congress to frame a constitution; and that the whole procedure was a scheme to defraud the South of all share in the territories. He accordingly voted against all the measures of the compromise bill, except that providing for the rendition of fugitive slaves. He was a member of the state convention which met in Charleston in May, 1851, to consider the propriety of withdrawing South Carolina from the Union in consequence of the alleged aggressions of the northern majority in congress, and of the passage of the compromise measures. He was one of the leaders of the small minority in this body who opposed secession on the ground of its inexpediency, and of the impolicy of taking so decided a step without the concurrence of other southern states. At the same time he fully admitted the right of a state to secede. The resolution against separate action by South Carolina, upon which the minority report was based, and which subsequently became the creed of the coöperation, as distinguished from the secession party, was introduced by him; and it was in a great measure owing to his efforts that the ordinance of secession failed of the two-third vote necessary to its passage. In the 33d congress he was appointed chairman of the committee on Indian affairs, and made an elaborate report on the proper means of civilizing the Indians, which in the case of some tribes was adopted with a considerable degree of success. During the same congress he supported the policy of non-intervention by congress on the subject of slavery in the territories, and voted for the repeal of the Missouri compromise, and the principles involved in the Kansas-Nebraska bill. In the 34th congress, which remained several months without a speaker, he was a prominent democratic candidate for that office, and during many successive ballots received the votes of his party, though without success. Upon the assembling of the 35th congress, however, he received the caucus nomination for the speakership, and was elected by the house on the first ballot. He discharged the duties of the office with ability, and during his occupancy of the speaker's chair his decisions were never overruled. A decided democrat in politics, he endeavored, though without success, to procure the regular representation of his state in the national conventions of the party, and was instrumental in selecting Charleson as the place of meeting of the nominating onvention of 1860. He has also been at differnt times urged as a candidate for the offices f vice-president and president. After his reirement from congress he modified his belief n the efficacy of the democratic party to save he Union or even itself, and during the presiential canvass of 1860 he expressed himself in avor of a confederacy of the southern states, lthough still opposed to the separate secession f South Carolina from the Union. His views hanged in this respect also after the election f Mr. Lincoln· and as a member of the South Carolina convention which met in Dec. 1860, he recorded his vote in favor of the immediate and separate secession of his state. He subsequently officiated as one of the 3 commissioners despatched by South Carolina to Washington to treat with the general government for the surrender of the U. S. forts in the harbor of Charleston, and to transact other business. He was also present in the capacity of commissioner from South Carolina at the secession convention of the state of Georgia, which met at Milledgeville, Jan. 16, 1861. Mr. Orr has been a busy legal practitioner, and has acquired a reputation as an orator before literary societies.

ORRERY, a machine representing the motions of the planetary bodies. Distinct names have been given to various modifications of it: the planetarium, which exhibits the orbital paths of the planets and their satellites; the tellurium, which shows the motions of the earth causing day and night, the seasons, and the variable length of the former as dependent upon the latter; the lunarium, which shows the motions of the moon; and the satellite machine, chiefly intended to represent the motions of Jupiter and his satellites. The ordinary orrery was invented by George Graham about 1700, and first patronized by the earl of Orrery. Steele, probably supposing the earl to be the first promoter if not the inventor of it, called it by his name. The contrivance is useful rather in aiding the conceptions than in elucidating truths; but it is mischievously faulty owing to the impracticability of representing in model any thing like the proportions subsisting among the planetary bodies. Sir John Herschel calls it a "very childish toy." The best orreries are expensive and complicated.

ORRIS ROOT, the dried rhizome of the white iris (*iris Florentina*, Linn.), a plant of the natural order *iridaceæ*, native of southern Europe and of the islands of the Mediterranean, having broad, somewhat falcate leaves, which are shorter than the stem, large, showy, white flowers, the petals 2 inches long and 1 inch broad, reflexed at their edges, and somewhat plaited at the base. The rootstock has an aromatic odor and subacrid taste, and is used in preparing dentifrices. When fresh it acts as a purgative, and has been employed as an expectorant in diseases of the chest, being at one time admitted into the British pharmacopœia. The rhizomes or rootstocks of the purple iris or flower de luce (*I. Germanica*, Linn.), which grows spontaneously on walls and in dry places in Europe, are also sometimes employed for the same purposes. The roots of many of the irids contain starch, and several are eaten in various parts of the world. (See IRIS.)

ORSINI, the name of a celebrated Italian family, conspicuous in the history of the middle ages, especially at Rome, where, in wealth and political importance, they rivalled the Colonnas. Their ancestors, who originally came from Spoleto, were distinguished in the Christian metropolis as early as the 1st half of the 12th century. Giordano, for his services to the pope as a soldier, was promoted to a cardinalship in 1145, and a few years later, in the capacity of legate, sent to Conrad III. of Germany; while his nephew, Matteo, held the post of prefect of Rome. Toward the end of the 12th century, Orso ruled the city as its senator, while another member of the family, Celestine III., occupied the papal chair. Their power was increased by the marriage of Orso's son, Giovanni, with the heiress of the house of Gaetani; and of their two sons, the elder, Napoleone, became count of Tagliacozzo in the kingdom of Naples; the younger, Matteo, styled the Great, continuing in Rome, was, like his grandfather, elected senator, at the same time holding Anagni and several other large fiefs in the Campagna. One of Matteo's sons, Giovanni, became pope under the name of Nicholas III. in 1277, and endeavored to perpetuate the dignity of senator in his family, for whom he secured princely alliances. The Orsinis now reached the zenith of their fortune, and their quarrels with the Colonnas filled for years the annals of Rome. They were Guelphs, and generally found on the side of the popes, while their rivals adhered to the Ghibelline party. They disputed the ascendency sword in hand, and the struggle raged through the whole of the 14th century, without decisive results, although Petrarch celebrated the triumph of the Colonnas. The castle of Bracciano, on the lake of that name, was the chief residence of the family, who possessed beside many strongholds in Rome and its vicinity. Pope Alexander VI., in the beginning of the 16th century, found it expedient to get rid of three of their number; thus Cardinal Orsini was poisoned by his order at Rome, while his son, Cesare Borgia, caused Francesco and Paolo to be treacherously seized and strangled at Sinigaglia.—The Roman branch of the family became gradually extinct; but the Neapolitan branch is still extant. Some of the early members of the latter entered the service of the house of Anjou, obtained high honors at the court, and became counts of Nola and dukes of Gravina in the 15th century. Pietro Francesco gave up his duchy to his brother Domenico, entered the church, and in 1724 became pope under the name of Benedict XIII. The family still hold the highest rank among Italian nobles. Their present head, Prince Domenico Orsini, born in 1790, holds the rank of lieutenant-general, and, beside the title of duke of Gravina, bears the honorary appellations of assistant prince of the holy see and senator of Rome. He married, Feb. 6, 1823, Maria Luisa, daughter of the celebrated banker Torlonia, duke of Bracciano, who has borne him three daughters and one son, Filippo. The seat of their family is still at Rome in the Orsini palace, which stands on the ruins of the theatre of Marcellus, but their usual residence until the revolution of 1860 was at Naples in the Gravina palace.—A younger branch of the family has settled in Piedmont, and is now represented by Giacomo Orsini, count of Rivalta and Orbassano, born in 1786.

ORSINI, Felice, an Italian revolutionist, noted for his attempt upon the life of Napoleon III., born in Meldola, a village of the Papal States, in 1819, executed in Paris, March 13, 1858. The son of a conspirator, he early engaged in political plots, and when scarcely 20 years of age was sentenced to penal labor for life. Restored to liberty in 1846 in consequence of the amnesty declared by Pope Pius IX., he returned to his former associates and participated in various insurrectionary movements in central Italy. On the revolution of 1848 at Rome, he was elected a member of the constituent assembly, vested with extraordinary powers, and sent to Ancona and Ascoli, where he suppressed brigandage by such violent means as to cause his censure by a court of justice. He participated in the defence of Rome and Venice, figured as an agitator in Genoa and Modena, and in 1853 was transported to England by order of the Sardinian government. He lived there on intimate terms with Mazzini, and was employed by him on several revolutionary missions. In May, 1854, under the assumed name of Tito Celsi, he attempted an outbreak in Parma, but failed, and retired to Milan, concealing himself under the name of George Hernagh, and afterward visited Trieste, Vienna, and Hermannstadt. In the last named city he was arrested and taken to Italy, where he was closely confined in the fortress of Mantua. Escaping in 1856, he returned to England, where he delivered lectures and wrote a book entitled "The Austrian Dungeons in Italy," which had a large circulation. In 1857 he repaired to Paris for the purpose of assassinating Napoleon III., whom he considered the main obstacle to the progress of revolution. In his plot he had three associates named Pieri, Rubio, and Gomez. On the evening of Jan. 14, 1858, as the emperor and empress were approaching the grand opera, three bombs were thrown under their carriage and exploded, killing or wounding a large number of persons, though the intended victims escaped unhurt. Orsini and his accomplices were arrested, arraigned before a court of justice, and sentenced, Orsini, Pieri, and Rubio to capital punishment, and Gomez to hard labor for life. At the scaffold Orsini evinced the utmost calmness, his last words being: *Vive l'Italie! vive la France!* Pieri had been beheaded before him; and through the intercession of the empress Eugénie the life of Rubio was spared.

ORSINI, Fulvio, an Italian antiquary and philologist, born in Rome in 1529, died in 1600. The natural son of a knight of Malta who belonged to the princely family of Orsini, he was deserted by his father in his childhood, but, overcoming the difficulties of poverty, he became one of the most learned men of his time. Entering holy orders, he won the favor of Cardinal Farnese, who appointed him his librarian. Pope Gregory XIII. also befriended him, and he was thus enabled to gather an invaluable collection of medals and antiques, which he bequeathed to his benefactor's nephew, Cardinal Odoardo Farnese. He published many works on philological and antiquarian subjects.

ORTHOGRAPHY. See Language.

ORTHOPTERA, an order of insects, with chewing jaws, 2 rather thick and opaque upper wings, slightly overlapping on the back, and 2 larger thin plaited straight wings under these; they undergo partial transformation, and the larvæ and pupæ, though wingless, are active. It contains the 4 groups of runners (earwigs and cockroaches), graspers (*mantes* or soothsayers), walkers (spectres and walking leaves), and jumpers (crickets, grasshoppers, and locusts). The *mantes* are carnivorous, and the other groups are more or less destructive to vegetation and to household articles; some of the strangest insect forms occur in this order.

ORTOLAN, or more properly Ortulan, a bunting of the genus *emberiza* (Linn.). The bill is small, acute, and conical, and the palate is furnished with a prominent bony knob; the wings are moderate, the tail lengthened and somewhat forked, with feathers rather lanceolate; tarsi as long as the middle toe. This well known bird (*E. hortulana*, Linn.) is about 6½ inches long; the head and neck are greenish gray with dusky spots; the throat, space around eye, and band from bill downward, yellow; upper parts reddish bay, each feather black in the middle; below bay red, tipped with gray; tail blackish; the female is smaller, with brown spots on the breast and fainter colors. Rare in England, it is very abundant in southern Europe, where great numbers are caught in snares in early autumn, and fattened for the table in constantly lighted rooms on oats, millet, and spiced bread, on which the flesh becomes very fat and of a high and delicious flavor; they are considered perfect when they attain the weight of 3 ounces. They are very abundant on the island of Cyprus, where they are pickled in casks with spice and vinegar, each cask containing 300 or 400 birds; in some years the number of casks exported has amounted to 400. In ancient Rome epicures used to pay enormous prices for these delicacies, and they are as much relished, though less dearly bought, by the modern nations of southern Europe; many are annually prepared for the tables of the rich. It is a handsome bird, and has a flute-like warble, but is more prized for the table than as a cage bird.

ORVET. See Blindworm.

ORYX. See Antelope.

OSAGE, a central co. of Mo., bounded N. by the Missouri river and N. W. by the Osage, and intersected by the Gasconade; area estimated at 850 sq. m.; pop. in 1856, 6,493, of whom 271 were slaves. It has an uneven surace, and near the streams a fertile soil. The productions in 1850 were 301,383 bushels of ndian corn, 26,229 of wheat, 43,410 of oats, 3,244 lbs. of wool, and 79,409 of butter. There were 3 churches, and 208 pupils attending public schools. Capital, Linn.

OSAGE ORANGE, the familiar name of a tree of the natural order of *urticaceæ*, growing wild in the south-western parts of the United States. It was called *Maclura aurantiaca* by Nuttall, in honor of the American geologist William Maclure. It was first found near a village of the Osage Indians, which fact, connected with the globular form and golden color of its fruit, originated its popular name. The Osage orange, also called bow wood and yellow wood, is a striking and beautiful lactescent tree, growing 30 or 40 feet high; its foliage is not unlike that of the orange tree, but more glossy and polished and of a bright green color. Its branches spread widely into a broad head; its flowers are diœcious, small, pale yellowish green; the barren are about 12 in number, borne in a very short, almost sessile, racemose panicle, without calyx; corolla 4-parted, stamens 4; the fertile closely aggregate upon an axis, forming a little ball with a very short peduncle; the corolla oblong, urceolar, 4-lobed at tip, including the ovary, which is terminated by a filiform, downy style, considerably exserted beyond the corolla; the ovary at length becomes a small, compressed, oval achenium with a blunt and unsymmetrical tip; on ripening the little ball assumes a large, globular, and compact form, about the size of a large orange, yellow when ripe and roughened on the outside, containing a mucilaginous fluid, insipid and uneatable. The sap of the young wood and leaves is milky, and contains a large proportion of caoutchouc; the color of the wood is a bright yellow; its grain is fine and elastic, on account of which property it is employed by the southern Indians for bows. The young branches, beset with sharp, straight thorns, have suggested the employment of the tree for making live hedges, which succeed admirably where the winters are not so severe as to kill the annual growth. Treated as a hedge plant, it has many excellent characters, being robust, vigorous, and long-lived, sending out a profusion of strong shoots, bearing the shears well, and giving a charming effect by the lustre of its leaves. In order to form a compact growth, two shearings in a season are found requisite. It is easily cultivated and propagated, and pieces of the root planted out in the nursery, with the tips just exposed above the earth, will readily grow; seeds procured from fertile trees may be sown in broad drills, a quart of seed producing at least 5,000 plants. Silkworms have been fed upon the foliage, but the practice did not prove entirely satisfactory. The bark affords a strong fibre of a flaxy character. In affinity the Osage orange is closely related to the *moraceæ*. (See Mulberry.)

OSAGE RIVER. See Missouri, vol. ix. p. 588.

OSAGES, a tribe of North American Indians, belonging to the Sioux or Dacotah family. The name by which they were known to the

Algonquins (*ouasash*) signifies bone men; and the word Osage, of French origin, is a corruption of that name. They have from very early times been prominent in the south-west, and are physically of good stature and courage. The tribe is divided into two bands, the Little and Great Osages. The latter make their permanent encampments on the river Osage of Missouri. By treaty with the United States, dated Dec. 30, 1825, the tribe is located upon a tract lying between lat. 37° and 38° N., and long. 94° and 98° W., and watered by the Arkansas, Verdigris, and Neosho rivers. This tract contains 7,564,000 acres, of which probably 5,600,000 acres are cultivable. When it was surveyed, at the time of the treaty, the tribe numbered 5,500, and the land was an allowance of 1,018 acres for each person. The numbers returned to the Indian department, however, are not to be relied upon, as the chiefs enroll more than the tribe contains, with a view to swell their annuity receipts from the government. In 1837 the tribe was estimated to contain about 4,000. It is scarcely possible that it may at present consist of 3,000. They do not confine themselves to the boundaries of their territory, but range the whole country between the Arkansas and Missouri rivers. They are open plunderers of all defenceless white men that fall in their way. The chase is still ostensibly followed for subsistence by the whole tribe, their hunting grounds being in the Ozark mountains. The full-blooded Osages are indolent and intemperate, and manifest no disposition to engage in agricultural pursuits; but many half-breeds cultivate the soil. As many as 1,000 of the tribe have died in a year from destitution and disease; and during a prevalence of measles in 1852, 1,000 children died within a few weeks. A manual labor school for Osage children has been established under the supervision of the Rev. Father Schoenmakers.

OSAKA, one of the 5 great imperial cities of Japan, situated on the S. W. coast of Niphon, in the province of Setz, 33 m. from Miako, of which it is the port; lat. 34° 40′ N., long. 135° 25′ E.; pop. estimated at 400,000. In the 16th century it was for many years the capital of the empire. It is at the mouth of the Yedogava, a river as wide as the Thames at London, across which there are many bridges of cedar wood. The city is protected by a large and strong stone castle on its E. side, and by two forts which separate it from its western suburbs. Its length is about 3 m. and its breadth somewhat less. Several canals, crossed by upward of 100 bridges, intersect the city. The streets are narrow and cross each other at right angles, and are kept very clean. The houses are built of wood, lime, and clay, and are two stories in height. It is the most commercial place in Japan, being singularly well situated for both inland and coasting trade. A thousand Japanese vessels are usually to be seen in its harbor, and its manufactures of cotton, iron, and saki are famous throughout the empire. It is renowned as a seat of pleasure and dissipation, and the women are considered the handsomest in Japan.

OSCAR I. JOSEPH FRANCIS, king of Sweden and Norway, born in Paris, July 4, 1799, died in Stockholm, July 8, 1859. He was a son of the French general Bernadotte, afterward king of Sweden, his mother being Désirée Clary, the sister of Mme. Joseph Bonaparte, and received the name of Oscar from his godfather Gen. Bonaparte, then just returned from Egypt. He commenced his education at the Louis le Grand college, and was but 11 years old when his father was elected by the *Riksdag* of Sweden crown prince, as future successor of Charles XIII. After his removal to Stockholm in Nov. 1810, he was placed under the care of a Swedish governor, Count Aderstroem, and two preceptors, Tannstroem and Atterbom, the latter a distinguished poet. He soon acquired a perfect command of the Swedish language, and showed remarkable proficiency in literature, science, and the fine arts. He composed music, and some of his songs, hymns, and marches are still performed in Sweden. This, however, was but a diversion in the midst of more serious pursuits. He gave particular attention to politics, the military art, and other studies befitting his station, and in 1818 entered the university of Upsal, on which occasion he was elected its chancellor. He had previously renounced Roman Catholicism to embrace the national or Lutheran creed. He thoroughly imbued himself with Swedish sentiments, and held such views and opinions as promised a truly national administration. Notwithstanding the advice of his father, who, to strengthen or rather preserve his throne, was a pliant ally of Russia, he agreed with public opinion, was antagonistic to such a policy, and, without failing in filial respect, placed himself in an attitude of independence that made him extremely popular among his future subjects. On his accession to the throne, March 8, 1844, he adopted liberal measures, and caused bills to be presented to the *Riksdag* for the removal of the civil disabilities of the Jews, the freedom of manufactures and commerce, and parliamentary reform. This last project was ill received by the deputies of the nobility, and gave rise to troubles, during which King Oscar evinced great moral courage. His repeated attempts in the same direction from 1848 to 1854 were baffled by the domestic opposition, and suspended by events connected with the Crimean war. He was more successful in his exertions for religious reform and the improvement of the social condition of women; but the most salutary law for which his kingdom was indebted to him is that of 1854, regulating the manufacture and trade of brandy, which retrieved Sweden from the brink of ruin, by the repression of drunkenness. He secured the good will of his Norwegian subjects, and avoided the dangers resulting from the union of the two kingdoms. His foreign policy was marked by prudence and firmness

He tried to relieve his kingdom from the overwhelming influence of Russia. On the outbreak f the Crimean war, in concert with the king f Denmark, he issued a declaration of armed eutrality; and on Nov. 21, 1855, he concluded defensive treaty with France and England, nd was ready to commence hostilities, had not he two great western powers been disinclined o transform the eastern into a European war. His attitude toward Russia added to his popuarity among the Swedes, and enhanced his haracter in the eyes of Europe. But constitutional disease, increased by the grief consequent pon the death of his second son Gustavus in 852, and the anxiety resulting from the dangers through which he had to guide his kingdom, led him, on Sept. 25, 1857, to resign his authority into the hands of his eldest son, Charles, who took the title of regent. Oscar married in 1823 Joséphine Maximilienne Eugénie, daughter of Eugène Beauharnais, the son of the empress Josephine. Beside Charles XV., who succeeded him, he left two sons, Oscar Frederic, duke of Ostrogothia, and Augustus, duke of Dalecarlia, and two grandsons. His aged mother, a popular and accomplished woman, died at Stockholm, Dec. 17, 1860.

OSCEOLA (Seminole, *As-se-ho-lar*), a chief of the Seminole Indians, born in Florida about 803, died at Fort Moultrie, near Charleston, an. 31, 1838. He was the son of an Indian rader, an Englishman named Powell, and his mother was the daughter of a chief. In 1835, while on a visit to Fort King, his wife, who was the daughter of a fugitive slave woman, was claimed as a slave by the owner of her mother, and was carried off as such. Osceola, n his anger making use of threatening expresions, was seized by order of Gen. Thompson, he U. S. Indian agent, and put in irons, but eleased after 6 days' imprisonment. Resolved pon vengeance, he lay in wait for Gen. Thompon for weeks and months, and at length finding him outside of the fort, Dec. 28, killed him nd 4 other whites who were in company. This was the beginning of the second Seminole war. Osceola immediately took command of a band of Indians and fugitive slaves, who on he same day had surprised and massacred Major Dade and a detachment of 110 U. S. oldiers. On Dec. 30, with 200 followers, he ncountered Gen. Clinch and 600 Americans at he crossing of the Withlacoochee, and after hard-fought action of upward of an hour was compelled to retreat. The Seminole chief was disabled by a wound early in the battle. Subsequently he fought several actions against he troops under Gen. Gaines, and on June 9, 836, led a most daring and well conducted ssault upon the fortified post at Micanopy, which was repulsed with difficulty by the arrison of 800 regular troops. On Aug. 12 e defeated the U. S. troops at Fort Doane. For upward of a year he conducted the strugle against superior forces with energy and skill; but on Oct. 23, 1837, while holding a conference under a flag of truce with Gen. Jessup near St. Augustine, he was treacherously seized with a number of his followers and kept in confinement at Fort Moultrie till his death.

OSCILLATORY MOTION. See Mechanics, vol. xi. p. 324.

OSCULATI, Gaetano, an Italian naturalist and traveller, born in Vedano, Lombardy, Nov. 29, 1808. He devoted himself from an early age to the study of the natural sciences, and in 1830 and 1831 visited Greece, Egypt, Asia Minor, and other provinces of Turkey. He embarked for South America in 1834, traversed the greater part of that continent, and returned to Europe by way of Cape Horn in 1836. In 1841 he undertook a journey to Arabia, Armenia, Persia, and the coast of Malabar in India, and in 1846 made a second visit to America. After passing hurriedly through Canada, the United States, the Antilles, and Venezuela, he went to Quito, and thence started on an expedition to the Napo, a tributary of the Amazon. His Indian guides abandoned him after several days' march, but he succeeded in reaching the Napo alone after a journey across a wide expanse of unsettled country and through trackless forests. During two weeks he had no food but palm leaves and a single kind of fruit. He returned to Europe in 1848, taking with him a rich collection of specimens and ethnographical memoranda; and he published at Milan, in 1854, an account of this excursion, entitled *Esplorazione delle regioni equatoriali lungo il Napo.*

OSGOOD, David, D.D., an American Congregational clergyman, born in Andover, Mass., in Oct. 1747, died in Medford, Mass., Dec. 12, 1822. He was the son of a farmer at whose door James Otis was standing when struck dead by a flash of lightning. Till the age of 19 he labored upon the farm, and then began to study under the Rev. Mr. Emerson of Hollis, with such diligence that in 16 months he was prepared to enter Harvard college. He was graduated in 1771, studied theology for a year in Cambridge, and was ordained Sept. 14, 1774. He settled in Medford, where he continued as minister for nearly 50 years. He became in time a distinguished preacher, especially on political topics. He was a zealous federalist, and one of his sermons in 1794, occasioned by Citizen Genet's appeal to the people against the government, attracted great attention, and when published passed rapidly through several editions. His most celebrated discourse of this nature was an election sermon preached in 1809. He was a thorough Calvinist in opinion, and had little sympathy with Unitarian theology, though most of his intimate associates were Unitarians. The Rev. Dr. Francis says of him: "On the whole, he was a truly good and great man; an earnest seeker, and a fearless preacher of God's truth; of a robust, manly, vigorous mind, and of a heart full of unceremonious frankness, but by no means destitute of gentle and kind affections." A volume of sermons by Dr. Osgood was published after his death (Boston, 1824).

OSGOOD, Frances Sargent, an American poetess, born in Boston about 1812, died in New York, May 12, 1850. She was the daughter of Mr. Locke, a merchant of Boston. Early attracting the notice of Mrs. Lydia Maria Child, she contributed to a "Juvenile Miscellany," published by her, a number of poems under the signature of Florence. In 1835 she was married to Mr. S. S. Osgood, a painter, with whom she went to London, and there became known by her contributions to the magazines, by a miniature volume entitled "The Casket of Fate," and by a collection of her poems entitled "A Wreath of Wild Flowers from New England" (8vo., 1839). Among these was a drama in three acts, entitled "Elfrida," which so interested James Sheridan Knowles, that at his request she wrote for the stage a play entitled "The Happy Release, or the Triumphs of Love." Although accepted, it was never performed. She returned to Boston in 1840, and afterward removed to New York, where she remained the rest of her life, contributing both in prose and poetry to the magazines. While there she edited, beside other works, "The Poetry of Flowers, and Flowers of Poetry" (New York, 1841), and "The Floral Offering" (4to., Philadelphia, 1847), both of which were illustrated gift books. An edition of her poetical works was issued in 1846, and a complete collection in 1850.

OSGOOD, Samuel, D.D., an American clergyman and author, born in Charlestown, Mass., Aug. 30, 1812. He was graduated at Harvard college in 1832, and at the Cambridge divinity school in 1835. After two years spent in travelling and preaching, he was ordained in 1837 over the Unitarian church in Nashua, N. H. He was called thence at the close of 1841 to the Westminster church, Providence, R. I., and in 1849 to the church of the Messiah, New York, where he still remains. He received the degree of D.D. from Harvard college in 1857. Dr. Osgood has been a voluminous writer. His first publications were translations from Olshausen and De Wette, "The History of the Passion" (Boston, 1839), and "Human Life" (Boston, 1842). His original works are: "Studies in Christian Biography" (New York, 1851); "The Hearthstone" (New York, 1854); "God with Men" (Boston, 1854); "Milestones in our Life Journey" (New York, 1855); and "Student Life" (New York, 1860). He was an editor of the "Western Messenger," Louisville, Ky., in 1836 and 1837, and of the "Christian Inquirer," in New York, from 1850 to 1854. He has contributed largely to the "Christian Examiner," and published some articles in the "North American Review," the "Bibliotheca Sacra," and the leading monthly magazines. His printed sermons, speeches, and orations are numerous, the most conspicuous among them being his discourse at Meadville theological school on "The Coming Church and its Clergy" (1858), and his oration before the alumni of Harvard, at President Felton's inauguration in 1860. He has been active in literary and educational interests in New York and New England, and has been for some years domestic corresponding secretary of the New York historical society. His theological position is more with what is now called the "Broad Church," than either with the old school Unitarian, or the new school of rationalists. He is much devoted to the improvement of the young, and especially in attaching them to a genial church life.

OSHKI, Abraham. See Abraham Oshki.

OSHKOSH, the capital of Winnebago co., Wis., situated on both sides of the Neenah or Fox river, at its entrance into Lake Winnebago, 90 m. N. N. E. from Madison; pop. in 1857, 8,041. The two portions of the town are connected by 3 bridges. Both the river and lake are navigable for steamboats, and there is an extensive trade in lumber. It contains several saw mills, 2 planing mills, an iron foundery, and 3 churches.

OSHMOONEYN, Eshmooneyn, or Achmouneyn, a village of Egypt, on the left bank of the Nile, in lat. 27° 50′ N.; pop. about 4,000. It occupies the site of the ancient Hermopolis Magna, which was the capital under the Greek rulers of a nome of Middle Egypt, or, according to Pliny and some other authorities, of Upper Egypt. It ranked second in importance to Thebes, and was famous for the worship of the divinities Typhon and Thoth. The former was represented by a hippopotamus on which sat a hawk fighting with a serpent. The latter, whose symbols were the ibis and the cynocephalus, was the principal deity of the place, and his name and emblems were introduced more frequently than those of any other god into the architectural designs. He was regarded as identical with Hermes or Mercury, and hence the Greeks gave the name of Hermopolis to the city, whose original appellation seems to have been Shmoun. A part of the beautiful portico of the temple of Thoth was standing during the present century; but being built of calcareous stone, the Turks destroyed it and burned it for lime. The pasha has also established a powder mill in the vicinity and a number of workmen are employed in extracting nitre from the mounds which mark the site of the ancient city. To the westward is the ancient burial place of Hermopolis, where numerous ibis and cynocephalus mummies have been found.

OSIANDER, Andreas, often called by his German name of Hosemann or Hossmann, a Lutheran divine, born in Gunzenhausen, Franconia, Dec. 19, 1498, died Oct. 17, 1552. He studied amid much privation at Leipsic, Altenburg, and Ingolstadt, and was remarkable for his knowledge of the ancient languages, especially of Hebrew, and also of mathematics and medicine. Afterward he became teacher of Hebrew in the Augustinian convent of Nuremberg, and in 1522 pastor of a church in that city, which position he held for 27 years. He joined Luther's party immediately after the attack on indulgences, and took a prominent part in the theological controversies of the period. He participated in the conference in 1529 at Marburg between the Swiss and Lutheran divines in regard to the doctrine of the real presence, and was present at Augsburg in 1530. On the promulgation of the Augsburg *Interim* in 1548 he left Nuremberg, but was invited by Albert, duke of Brandenburg, to become pastor and professor of theology in the university of Königsberg. He had never entirely agreed with Luther's views; and he now propagated opinions concerning penitence, the divine image in man, the two natures of Christ, and justification, which were combated by Melanchthon and his colleagues, and led to a warm controversy, which continued for years after his death, ending in the execution of his son-in-law and partisan Funck and two of his friends for sedition, treason, and promoting the false doctrines of Osiander, with the formal condemnation of their heresies (1566). Osiander was a man of vast learning, eloquent, but eccentric and arrogant, and very violent against his opponents. He published works on the "Harmony of the Gospels," on the "Last Times and the End of the World," on "Prohibited Marriages," &c.

OSIER. See Basket Making.

OSIRIS, one of the three deities to whom supreme honor was paid in all the districts of ancient Egypt. The name is variously rendered "lord of the earth," "many-eyed," and "power energetic and beneficent." In the mythological legend Osiris is represented as the originator of human civilization, and as engaged subsequently to his philanthropic services in a terrible contest with Typhon or Evil. Typhon prevails; Osiris is slain, and his dead body is fitted into a chest, thrown into the Nile, and swept out to sea. Isis, the consort of Osiris, learns of his death, and ransacks the world in search of his body. She finds it, but it is unrelentingly mutilated by Typhon. Then Osiris descends into the infernal regions, and has a later and different existence under the name of Serapis. Typhon is eventually slain by Horus, the son of Isis. This myth has been pronounced astronomical, and Osiris thought to personify the sun. But the Egyptians had, in addition to the worship of Osiris, a distinct sun worship, and others therefore have argued that Osiris was a personification of the Nile. Both interpretations appear too narrow. The existence of Osiris is partitive, and only complete conjointly with that of Isis. They together are the one universal god-power for good, in nature or elsewhere, but more directly because more apparently in nature. Isis was the passive element, or prolific power—terrestrial nature in general; in a more confined sense, the soil of Egypt. Osiris was whatever acts upon passive nature for the good of man; the active energy of life; the beneficent or generative influence of the elements wherever exhibited. Hence he was at times, in a sense of fecundation, either the sun or the Nile, as both made Egypt fruitful. And, as the active power in nature is exercised intermittently, Osiris is continually overcome by Typhon, the disorderly, or evil, irregularity, and anarchy, and driven out of existence; but he has left a power in Isis that shall prevail in turn, and overcome the conqueror, who triumphs only for a time.

OSKALOOSA, the capital of Mahaska co., Iowa, situated between the Des Moines and Skunk rivers, about 6 m. from the former, and 63 m. S. W. from Iowa City; pop. in 1860, 2,475. It was laid out in 1844, and is in the midst of a healthful and fertile country, abounding in fine timber. It contains 2 steam mills, a state normal school, and several churches.

OSMAN. See Othman.

OSMIUM, a metal discovered in 1803 by Tennant, and named in reference to the acrid odor of its oxide from the Greek οσμη, smell. Its symbol is Os; chemical equivalent 99.41; specific gravity 10. It is obtained in thin flexible plates, of bluish gray color, which may be ground to powder in a mortar, from the native alloys of osmium and iridium that constitute the mineral species iridosmine, and are found with platinum. Various processes are described in chemical books for separating it, by one of which by the treatment of osmic acid it is obtained in a pulverulent form. In this condition it takes fire when heated in the open air, and may be dissolved by strong nitric acid or aqua regia, by which it is converted into osmic acid ($Os\,O_4$). After ignition it is no longer soluble in acid, and is neither volatile nor fusible. Four other compounds with oxygen are described. The metal presents more analogy with arsenic and antimony than with the noble metals; it is of no use in the arts.

OSNABRÜCK (in English generally Osnaburg), a S. W. *Landdrostei* or province of Hanover, divided into the principality of Osnabrück, the lower county of Lingen, the circles of Meppen and Emsbuhren, and the county of Bentheim; area, 2,411 sq. m.; pop. in 1858, 258,797, of whom about 144,000 were Roman Catholics. The country belongs for the most part to the plain of N. Germany, and is hilly only in the S. portion. In the level country the soil is generally sandy. The principal products are hemp, flax, and live stock, especially swine. The manufactures are principally woollen stockings and linen.—Osnabrück until 1802 was a bishopric, having been founded by Charlemagne. By the terms of the peace of Westphalia it was agreed that it should be alternately governed by a Roman Catholic and a Protestant bishop. The last bishop, Frederic of York, ceded the country to Hanover. It afterward became part of the kingdom of Westphalia, then of the French empire, and after the fall of Napoleon reverted to Hanover. The inhabitants are of Saxon descent. The present diocese of Osnabrück embraces the entire province and East Friesland, and is subject to the bishop of Ildesheim.—**Osnabrück**, the capital, is situated in a wide valley on the river Hase; pop. about 14,000. The most noteworthy public buildings are the cathedral, a Byzantine building of the 12th century, the churches of St. Mary, St. Catharine, and St. John, the palace built in 1663, and the town hall, in which the concluding conferences on the peace of Westphalia took place in 1648. The manufactures, which are important, consist of woollens, leather, linens, and above all, tobacco and cigars.

OSORIO, Hieronymo, a Portugese author, born in Lisbon in 1506, died in 1580. He was of noble birth, and received an excellent education, studying languages at Salamanca, philosophy at Paris, and theology at Bologna. He chose the ecclesiastical profession, and on his return to Portugal was made archdeacon of Evora, and ultimately bishop of Sylves. At the request of Cardinal Henry he wrote a history of the reign of King Emanuel. He also wrote a work called *De Gloria Libri V.*, which, on account of its elegant and pure Latinity, D'Alembert affirmed to be a production of Cicero's; and he was often styled the Cicero of Portugal; but Lord Bacon says "his vein was weak and material." A complete collection of his works in 4 vols. was published in Rome in 1592. His more popular writings have been translated into English, French, and Portuguese.

OSPREY. See Fish Hawk.

OSSIAN, a traditionary Scottish hero and bard, who is supposed to have flourished in the 2d or 3d century of the Christian era, and whose compositions in the Celtic language were for many ages preserved among the Scottish and Irish peasantry. He is said to have survived his race, and like Homer to have died blind. His father Fingal was one of the most famous of the Celtic legendary heroes; but both father and son are now generally regarded as mythical personages, although a temporary importance was given to the former in the last century by the publication of Macpherson's alleged translations from "Fingal," "Temora," and other poems by Ossian. (See Macpherson, James.)

OSSIFICATION. See Bone, and Cartilage.

OSSOLI, Margaret Fuller, an American authoress, born in that part of Cambridge, Mass., which is called Cambridgeport, May 23, 1810, died by shipwreck on Fire island beach, off the shore of Long island, July 16, 1850. She was the eldest child of Timothy Fuller, a lawyer and politician, who was a representative in congress from 1817 to 1825. He conducted the early education of his daughter himself. Under his tuition she was subjected to a severe discipline, which made her "a youthful prodigy by day, and by night a victim of spectral illusions, nightmare, and somnambulism." At 6 years of age she read Latin; at 8 she began to pore over Shakespeare, Cervantes, and Molière; and her lonely studies had induced a habit of melancholy and reserve before she was sent away to school at Groton, Mass. There she was remarkable for her capacity and freaks of passion, and for eccentricities which, as she records, received a salutary chastisement from her schoolmates. While a school girl, "she was considered," says William Henry Channing, "a prodigy of talent and accomplishment; but a sad feeling prevailed that she had been overtasked by her father, who wished to train her like a boy, and that she was paying the penalty for undue application in nearsightedness, awkward manners, extravagant tendencies of thought, and a pedantic style of talk." She returned home from school at the age of 15, and began an extended course of self-culture. Among the authors whom she read within a few years were Ariosto, Helvetius, Sismondi, Sir Thomas Brown, Mme. de Staël, Bacon, Epictetus, Racine, Locke, Byron, Sir William Temple, Rousseau, and many others. Conversation was already her most decided gift, and she attracted a circle of companions, who were wont to meet at their several residences for the discussion of opinions and sentiments. "Oh, for my dear old Greeks," she wrote, "who talked of every thing—not to shine as in the Parisian saloons, but to learn, to teach, to vent the heart, to clear the mind." She began to study German in 1832, and within a year had read the principal works of Goethe, Schiller, Tieck, Körner, and Novalis. Her journals and letters soon after mention Lessing, Plato, Tennemann, Ugo Foscolo, and the evidences of the Christian religion, as engaging her attention; and she also projected the composition of several dramas. The family removed to Groton in 1833; her father died two years afterward, leaving little property, and she renounced a plan of accompanying Harriet Martineau on her return to England, to teach Latin and the modern languages in Boston to private classes and in Mr. Alcott's school. In 1837 she accepted a more liberal offer as principal of a school in Providence, reluctantly giving up a project of preparing the life of Goethe for Ripley's "Specimens of Foreign Literature." Emerson, with whom she had now become acquainted, thought "there was something a little pagan about her." He thus describes her personal appearance at this period: "She was rather under the middle height; her complexion was fair, with strong fair hair. She was then, as always, carefully and becomingly dressed, and of lady-like self-possession. For the rest, her appearance had nothing prepossessing. Her extreme plainness, a trick of incessantly opening and shutting her eyelids, the nasal tone of her voice, all repelled; and I said to myself: We shall never get far. It is to be said, that Margaret made a disagreeable first impression on most persons, including those who became afterward her best friends, to such an extreme that they did not wish to be in the same room with her. This was partly the effect of her manners, which expressed an overweening sense of power and slight esteem of others, and partly the prejudice of her fame. She had a dangerous reputation for satire in addition to her great scholarship. The men thought she carried too many guns, and the women did not like one who despised them." On better acquaintance he found her more agreeable. "She was an active, inspiring companion and correspondent, and all the art, the thought, and the nobleness in New England seemed at that moment related to her and she to it. She was everywhere a welcome guest. The houses of her friends in town and country were open to her, and every hospitable attention eagerly offered. Her arrival was a holiday, and so was her abode. She stayed a few days, often a week, more seldom a month, and all tasks that could be suspended were put aside to catch the favorable hour, in walking, riding, or boating, to talk with this joyful guest, who brought wit, anecdotes, love stories, tragedies, oracles with her." In 1839 Miss Fuller went to reside at Jamaica Plain in the vicinity of Boston, and in 1840 became editor of the "Dial," a quarterly journal which she conducted for two years, aided by R. W. Emerson, George Ripley, and others. For this work she wrote many articles, of which those on Goethe and Beethoven attracted most attention. She also wrote for it "The Great Lawsuit," an eloquent expression of discontent at the social position of woman, which was afterward expanded into a volume and published under the title of "Woman in the 19th Century." In 1841 she translated and published the "Letters of Günderode and Bettina," and in 1843 made a journey to Michigan and Lake Superior, and published a narrative of it called "Summer on the Lakes." In Nov. 1839, she began with a class of 25 ladies of Boston and its vicinity a series of weekly meetings for conversation on literary and æsthetic topics, at which she was the principal talker, and which continued till 1844. In December of the latter year, at the invitation of Mr. Horace Greeley, she removed to New York and became an inmate of his house and a contributor to the "Tribune," principally of reviews, which with other articles from her pen were subsequently collected and published under the title of "Papers on Art and Literature" (New York, 1846). In the spring of 1846 she visited Europe, and after travelling extensively in Great Britain and on the continent, arrived at Rome in May, 1847, where in December she was married to a Roman nobleman, the marquis Giovanni Angelo Ossoli. She was in Rome during the revolution of 1848, and during the siege of the city by the French in 1849 was, at the request of her friend Mazzini, appointed directress of one of the hospitals for the wounded. Subsequently she wrote a history of the revolution and siege, the MS. of which was lost at the time of her death. In May, 1850, she embarked at Leghorn in the ship Elizabeth for New York, with her husband and infant son, both of whom perished with her in the wreck of the vessel in the vicinity of its intended port.—See "Memoirs of Margaret Fuller Ossoli," by R. W. Emerson, W. H. Channing, and J. F. Clarke (Boston, 1852).

OSSUÑA, Pedro Tellez y Giron, duke of, a Spanish soldier and statesman, born in Valladolid in 1579, died in 1624. He was educated at the university of Salamanca, and was early introduced to the court, where his satirical disposition brought upon him the displeasure of Philip II. He first retired to Saragossa, where he aided in the escape of Antonio Perez, the disgraced secretary of the king, then went to France and afterward to Portugal, and did not return home until after Philip's death. For his freedom of speech he was again exiled, and repaired to Flanders, where he fought at the head of a regiment which he had raised at his own expense. Through the influence of the duke of Lerma he was recalled in 1607. He advised the duke of Lerma to conclude the truce of 1609 with the Dutch, and strenuously opposed the expulsion of the Moriscos from Spain. In consequence of this and some jesting remarks about a miracle, he was accused of infidelity and tried before the inquisition, but was acquitted, and in 1611 was appointed viceroy of Sicily. In 1616 he was sent to Naples in the same capacity. Here, as well as in Sicily, his exertions were directed to improving the condition of the country, which rendered him extremely popular with the middle and lower classes, but exposed him to the hatred of the nobles, while his refusal to establish the inquisition within the limits of his government drew upon him the enmity of the clergy. Conscious perhaps that this powerful opposition must soon ruin him at court, he indulged in wild and ambitious schemes, which, it is suspected, tended to the establishment of an independent sovereignty in southern Italy. To this end, and in order to mislead the Spanish government, he concocted the celebrated conspiracy against Venice, the apparent aim of which was the subjection of that republic to Spain, but which was in reality only the first step toward the creation of a kingdom for himself. As no formal charge could be brought against him, he was merely recalled, and his return to Madrid in 1620 was almost a triumph. But on the accession of Philip IV. he was arrested and subjected to a rigorous inquest, which lasted 3 years. The results of this trial were kept secret. Ossuña, however, being probably afraid of its consequences, put an end to his life by poison, which, it is reported, was secretly brought to him by his wife, in the castle of Almaceda, where he was confined. His son Juan inherited his title and estate, and became viceroy of Palermo.

OSTADE, Adrian van, a Dutch painter, born in Lübeck in 1610, died in Amsterdam in 1685. He studied at Haarlem under Frank Hals, and is said also to have been a pupil of Rembrandt. Ostade's pictures generally represent the interiors of ale houses, farm houses, or kitchens, with Dutch boors carousing, and rural fairs or sports, in which the vulgarity and grotesqueness of the subject are redeemed by the manner of its treatment. When, in 1662, a French army approached Haarlem, he became alarmed and sold his pictures with a view of returning to Germany. Stopping on his way at Amsterdam, he was persuaded to change his resolution and to take up his residence in that city, where he remained until his death. His pictures, which are generally of cabinet size, are now comparatively scarce, and the best have increased in value six or seven fold within the last 50 years, those selling for £200 or £300 at the commencement of the century, now bringing upward of £1,400. Ostade also produced a number of etchings from his own designs.—Isaac van, brother of the preceding, born in Lübeck in 1617, died about 1654. He received his first instructions from his brother, in whose style his earliest pictures are painted, although much inferior in color and execution. Subsequently he adopted a manner of his own, in which he proved himself an original master, and, according to Dr. Waagen, "by no means inferior to his brother." His subjects comprise travellers halting at inns, views of Dutch villages, winter pieces, and frozen canals covered with skaters. His pictures are not numerous, but those executed in his last manner have increased in value in a remarkable degree. Some of his finest works are contained in the collections of Great Britain.

OSTEN-SACKEN, Dmitri, count of, a Russian general, born in 1790. He entered the army in 1805, distinguished himself in the battles of Eylau and Friedland in 1807, and in the campaigns of 1812–'14, was promoted to the rank of major-general and made commandant of a brigade of hulans in 1825, and, accompanying Gen. Paskevitch to the Caucasus as chief of the staff, took part in the sieges of Akhalkalaki and Kars, and commanded the left wing of the Russian army at the battle of the Aras. Sent afterward into Poland, he relieved Diebitsch, who was hard pressed by the insurgents, contributed to the victory of Ostrolenka in May, 1831, and was present at the taking of Warsaw in September. In 1843 he was made general of cavalry, and in 1850 received the command of a corps of infantry. He was military commander of Odessa when that city was bombarded by the allies in April and May, 1854, received from the czar the most flattering marks of esteem for his defence on that occasion, and being subsequently sent to the Crimea was charged with the defence of the S. part of Sebastopol during the siege. He is now a member of the imperial council, and holds the rank of aide-de-camp general.

OSTEND, a seaport town of Belgium, in the province of West Flanders, on the North sea, 88 m. W. from Brussels, in lat. 51° 14′ N., long. 2° 55′ E.; pop. about 15,000. It stands upon low ground nearly surrounded by water, and is well built and clean. The *digue*, a sea wall 40 feet high, extends between the sea and the town for about ¼ m. The town is connected by canals with the central parts of Belgium, by railways with all parts of Europe, and by steam packets and submarine telegraph with England, being the principal landing place for travellers from England to Germany. The harbor is large, but access is difficult on account of the bar. The town has a citadel and walls with 4 gates. The cathedral and 3 churches and a large sea bathing establishment are the principal buildings.—Ostend was destroyed by the sea in 1334, and for some time afterward the present place was only a fishing village. It was enclosed with walls by Philip the Good of Burgundy, and fortified in 1583 by the prince of Orange. The Spaniards took it from the Dutch, after a siege of 3 years, in 1604; in the war of the Spanish succession the allies captured it in 1706; and in 1715 it was ceded by Holland to Charles VI. of Austria. It was taken in 1745 by the French, and restored in 1748; and again taken by the French in 1794 and held until the peace of 1814, the English having made an unsuccessful attempt to capture it in 1798. Messrs. Buchanan, Mason, and Soulé, three American envoys in Europe, met in Ostend in Oct. 1854, to deliberate on the acquisition of Cuba by the United States.

OSTEOLOGY. See Anatomy, and Bone.

OSTERWALD, Jean Frédéric, a Swiss Protestant clergyman, born in Neufchâtel, Nov. 25, 1663, died there, April 14, 1747. On the completion of his studies he was appointed pastor of the Reformed church in Neufchâtel, which office he held during the rest of his life. He published an edition of the Bible in French, with explanatory heads to the books and chapters; *Abrégé de l'histoire de la Bible*; *Traité des sources de corruption parmi les Chrétiens*; *Traité contre l'impureté*; a catechism still popular among French Protestants; *Ethica Christiana*, &c. Osterwald, J. A. Turretin of Geneva, and Samuel Werenfels of Basel, were called the "triumvirate of Swiss divines," on account of their efforts toward the revival of religion in Switzerland.

OSTIA, a city of Latium, situated at the mouth of the Tiber, on the left bank of the southern arm of that river, 16 m. from Rome by the Via Ostiensis. It was founded by Ancus Marcius, who established there salt works by which the district around was supplied. It evidently grew with the growth of Rome, for, though not mentioned again until the 2d Punic war, it had become then a port and naval station of great importance, and of such vital consequence in its relation to Rome, that it was one of the two colonies allowed in 207 B. C. an exemption from military service. During the civil war between Sylla and Marius, it was taken and plundered by the latter in 87 B. C.; but recovering from this attack, it so increased in importance that it became the residence of one of the 4 quæstors of Italy, with the title of *quæstor Ostiensis*. But the deposition constantly made by the Tiber gradually filled up its port, and the difficulty of furnishing the city with grain finally induced the emperor Claudius to construct an artificial harbor on the right bank of the river 2 m. W. of Ostia. This new basin was called Portus Augusti, and was enlarged by Trajan, who added an inner basin, called from him Portus Trajani. The city of Portus, which sprang up about the new harbor, did not however cause the decline of Ostia, which was improved and adorned by succeeding emperors, particularly Hadrian and Septimius Severus. But, unprotected by walls, ts defenceless condition hastened its decay during the later ages of the empire, so that in A. D. 827 it is described as being entirely in ruins. After the decline of Portus, the modern Ostia, about half a mile from the site of the ancient, rose into some importance, and became the landing place for travellers. This s now a miserable town possessing a small cathedral, a bishop's palace, and a few dwellings, and inhabited by about 200 persons, chiefly engaged in the manufacture of salt. The ruins of the ancient city are extensive, but so dilapidated as to be uninteresting. Although originally founded on the sea, it is now 8 m. distant, the intervening land having been formed by the lluvial deposits of the Tiber.

OSTRACION. See Trunk Fish.

OSTRACISM (Gr. *οστρακον*, a tile or shell), an Athenian custom, employed in banishing from he state for a limited period any person deemed angerous to the republic. The institution is upposed to have originated with Clisthines fter the expulsion of the Pisistratidæ. Aris- otle gives this explanation of its object: "Dem- cratical states used to ostracize, and remove om the city for a definite time, those who ppeared to be preëminent above their fellow tizens, by reason of their wealth, the number f their friends, or any other means of influ- nce." Plutarch calls it a good-natured way of laying envy by the humiliation of superior dig- ty and power; and ostracism is ably defended y Mr. Grote in his "History of Greece," who gards it as a wise measure devised by Clis- enes for removing quietly from the state a owerful party leader, before he could carry ut any plot against the government. At first e banishment was for 10 years, but it was terward reduced to 5. It involved no dis- onor, nor any loss of property. The senate d public assembly determined whether ostra- sm was advisable; a day was then appointed, d a space in the agora enclosed, having 10 trances for the 10 tribes, through which the izens passed, each depositing in a prepared eptacle an oyster shell or potsherd (whence e custom was sometimes called the "earthenware scourge"), inscribed with the name of the person whom he wished banished. The archons counted the votes, and if there were 6,000 votes against any one person, that person withdrew from the city within 10 days; otherwise he remained. Among the distinguished men against whom this sentence was pronounced were Aristides, Themistocles, Cimon, and Alcibiades. The last occasion on which it was employed was about 416 B. C. It existed in several other states, as Argos, Miletus, and Megara.

OSTRICH, the type of a group of terrestrial rasorial birds, with the cassowary, emu, kiwikiwi (apteryx), dinornis and its extinct congeners, constituting the family *struthionidæ*, all which, excepting the ostrich, have been previously described. The family is readily distinguished by the massive body, elongated robust tarsi, and rudimentary wings. The genus *struthio* (Linn.) has a broad and depressed bill, with flattened culmen and strong rounded tip, the upper mandible overlapping the under; the oval nostrils are in a broad, membranous groove, near the middle of the bill; the wings are short and imperfect, with long, bending, and soft plumes; the tail moderate, composed of curved pendent feathers; tarsi very long and robust, covered with hexagonal scales, transverse in front near the toes; toes 2, short and strong, connected at the base by membrane, the outer short and much padded, and the other larger, with a stout, broad, flat nail. The only species is the African ostrich (*S. camelus*, Linn.), the largest of present birds, and excelled in former geological epochs only by some species of *dinornis* and *palapteryx*; it stands 7 or 8 feet high, and weighs from 80 to 100 lbs. The skeleton is much as in other birds, except that the bones of the wings are rudimentary, the sternum flat and without keel, the pubic arch united in front, and the bones almost entirely destitute of air cells. The males are of a more or less black color, except the loose feathers of the wings and tail, which are white; the female is dark brownish gray, as also are the half-grown males. The head and neck are nearly naked, and the plumage generally is very loose, admirably suited for the climate, protecting from the sun's heat and at the same time allowing perfect ventilation; the quills of the wings and tail are remarkable for the length of the barbs, which, though having barbules, remain separate from each other; it is for these long white feathers of the wings and tail that the ostrich is hunted, the best being considered those taken from the males and from the living bird; some of the plumage is so coarse as to resemble hair, and the wings have 2 plumeless shafts like porcupines' quills. The best ostrich feathers come from the Levant, and the N. and W. coasts of Africa; $8,000 to $10,000 worth have been imported in a year into Marseilles from Alexandria alone; when these feathers were in fashion, £5 or £6 a pound was paid in Grahamstown, S. Africa, and much higher in Europe, but the prices have since fallen; from 75 to 90 good-sized plumes should weigh a pound. Ostriches inhabit the dry sandy plains of Africa from the Barbary states and Egypt to the Cape of Good Hope; the hearing and sight are very acute, and the length of the neck and high position of the eye enable them to look over the tall herbage and perceive any approaching object at a great distance; generally seen feeding alone in some open spot, they sometimes collect in small flocks where their food is abundant; they are very shy, and when alarmed escape either by a quick stately walk or rapid run with the assistance of the wings. When feeding the stride is from 20 to 22 inches, when walking but not feeding 26 inches, and when terrified from 11½ to 14 feet; taking 12 feet as the average stride, they would accomplish about 25 miles an hour, tasking severely the speed and endurance of the fleetest horse; when at full speed, Livingstone says you can no more see their legs than the spokes of a rapidly revolving carriage wheel; when they begin to run all other game in sight follows the example; they never swerve from the line of direction first adopted. Ostriches are sometimes run down by fleet horses frequently changed, but are generally killed by artifice, one of the most successful modes being that practised by the Bushmen, of clothing themselves in one of their skins, and under cover of this getting near enough the stupid creatures to kill them with a poisoned arrow. When hotly pursued they sometimes turn upon their enemies, giving severe wounds with their feet. Their food consists of fruits, grain, leguminous vegetables, leaves and tender shoots, insects and snails, and such other food as can be picked up, in securing which a considerable quantity of stones is swallowed; the crop is enormous, and the gizzard very powerful; in confinement particularly, it is fond of swallowing all kinds of indigestible substances, some of which may be taken to aid in digestion, but most from mere stupid voracity. It is timid and inoffensive, and its voice is said to resemble the roar of a lion; it is easily tamed, but of little use when domesticated, though some have been trained like beasts of burden, their strength being so great that a large bird can carry a couple of negroes on its back. They are generally said to be polygamous, though Livingstone says not; they begin to lay eggs before a spot has been fixed upon for a nest, and these solitary eggs are often found lying forsaken all over a district; the nest is a simple hollow in the sand, from 3 to 6 feet in diameter, with a shallow border; in this are laid by a single bird or many in company from 12 to 50 or 60 eggs, which are incubated at night and left to the heat of the sun during the day; outside the nest are scattered several eggs, which the Hottentots say are for the first food of the young; the males assist in incubation, and in taking care of the young till they can provide for themselves; when the young attain the size of a common fowl they run with great speed. The capacity of an ostrich egg is equal to that of 24 hens' eggs, and a single one will weigh 2 or 3 lbs.; the eggs have a strong disagreeable flavor, relished however by the keen appetites of the Bushmen, who not only devour the contents but use the shells as water vessels; entire eggs are often suspended as ornaments in Mussulman and even in Christian churches in the East. A Hottentot will devour at a meal a whole ostrich's egg, cooked in a primitive way handed down from remote generations; Burchell ("Travels in Africa") says that they make a small hole in one end, through which by twirling a forked twig they thoroughly mix the white and yolk, and then cook the egg in the shell over the fire—an expeditious, clean, and simple way, requiring, says he, "neither pot nor water, the shell answering perfectly the purpose of the first, and the liquid nature of its contents that of the other." The flesh of the young bird is said to be palatable, being white and coarse, somewhat resembling that of a tough turkey; old birds are apt to be loaded with fat, as much as 20 lbs. being sometimes found in a single one, which is used in cooking and as an external application in rheumatism. Ostriches were well known in ancient times, and their brains used to be served as food on the tables of the luxurious Romans; they are frequently mentioned in Scripture, and a poetical description of them is given in Job xxxix. 13–18.—In the genus *rhea* (Möhr), the nandu or American ostrich, the bill is less thick and more curved at the tip; the wings are short and imperfect, with long soft feathers; the tail not apparent; toes 3, the inner the shortest. The best known species (*R. Americana*, Lath.) is about half the size of the African ostrich, of a uniform grayish tint, brownish on the back; the head is covered with feathers, and the long plumage of the wings and rump is used only for making feather brushes. It is a shy, solitary, and very fleet bird, yet easily captured on horseback by the lasso, or by tripping it up by throwing at the legs two balls or stones connected by a thong; it runs generally against the wind, using the wings to assist its flight; it can cross rivers, swimming with the body very deep. The food consists of roots, grasses, and sometimes mollusks and fish. The nest is a shallow excavation, in which several females deposit each from 14 to 20 eggs; many eggs are laid scattered over the plain, which the male rolls together with his bill, hatching the young and bravely defending them; it is clearly polygamous. The second species (*R. Darwini*, Gould) is smaller, of a wood-brown tint, with the tips of the feathers whitish; its habits are the same.

OSTROGOTHS. See Goths.

OSWEGO, a N. W. co. of N. Y., bounded N. W. by Lake Ontario, intersected by Oswego river, and drained by a number of streams flowing into the lake; area, 1,038 sq. m.; pop. in 1855, 69,398. It has a level or undulating surace, and the soil, though generally fertile, va-ies greatly in different parts. The productions n 1855 were 503,812 bushels of Indian corn, 35,432 of oats, 391,912 of potatoes, 56,896 of rheat, 53,138 tons of hay, 79,446 lbs. of wool, ,036,174 of butter, and 975,461 of cheese. here were 9 iron furnaces, 6 woollen, cloth, nd yarn factories, 42 grist mills, 218 saw mills, 8 tanneries, 8 newspaper offices, 84 churches, nd 27,249 pupils attending public schools. he Oswego and Syracuse and the Watertown nd Rome railroads traverse the county. Capi-als, Oswego and Pulaski.

OSWEGO, a city, port of entry, and semi-apital of Oswego co., N. Y., on Lake Onta-io, at the mouth of the Oswego river, by which t is divided into two nearly equal parts; pop. n 1860, 18,000. The river is crossed by two ridges, the lower one an iron bridge with a raw for the passage of vessels. The city is egularly laid out with streets 100 feet in width rossing at right angles. Among the principal ublic buildings are a fine edifice erected by the . S. government at a cost of $120,000, which ontains the custom house, post office, and U. S. ourt room; a court house, city hall, gaol, or-han asylum, city hospital, and city library. It ontains 13 churches, viz.: 1 African Method-st, 2 Baptist, 1 Congregational, 1 Lutheran German), 2 Methodist Episcopal, 1 Presbyte-ian, 2 Protestant Episcopal, 2 Roman Catholic, nd 1 Universalist. There are 2 daily and 2 weekly newspapers published, and liberal pro-ision is made for public schools. Situated at he foot of lake navigation, and having one of he best harbors on Lake Ontario, its commer-ial facilities are very great, and its trade and wealth constantly increasing. It is connected y the Oswego and Syracuse railroad with the ew York central, and with the New York and rie railroad by the Syracuse and Bingham-on. By the Oswego canal, 38 m. long, it com-municates with the Erie canal at Syracuse; and y the Welland canal of Canada with all the western ports. Large quantities of western roduce and a great portion of the agricultural xports of Canada West pass through this port o the south and east; while the manufactures f the east and the extensive products of the nondaga salt works flow in a counter current o the west. The foreign commerce for the year nding June 30, 1859, was as follows: exports, 1,732,582; imports, $3,637,709; clearances, ,529, tonnage 252,112; entrances, 1,536, ton-age 252,481; aggregate tonnage of the district, 6,817. Its domestic commerce far exceeds the bove; the imports coastwise in 1851 having een to the value of $6,083,036, the exports oastwise $11,471,071. On the canal the total onnage for 1860 was 944,144 tons. The river urnishes abundant water power, and the man-facturing interest is very important. There re 18 flouring mills, with an aggregate of 100 un of stone, and a capacity for grinding and acking 10,000 barrels per day. Of the mills 5 re on the harbor, and elevate their grain from the lake vessels, and discharge into canal boats; 6 grain warehouses on the harbor elevate and discharge the same way, and the other mills above elevate and discharge into canal boats. On the harbor the elevating capacity is 37,500 bushels per hour, and there is storage for over 2,000,000 bushels of grain. The Oswego starch factory, established in 1848, has a capital of $450,000 and employs 200 men. It has a main building of 510 feet front by 250 feet deep, which uses 500,000 bushels of grain and turns out 12,000,000 lbs. of starch per annum. There are various other manufactories in successful operation. The harbor is protected by Fort Oswego.

OTAHEITE. See Society Islands.

OTHMAN, or Osman, the founder of the Ottoman empire, born in Surgut, in Bithynia, in 1259, died in 1326. He is said to have been the son of Orthogrul, the leader of a horde of Turcomans who had entered into the service of the sultan of Iconium. Othman succeeded his father in the command, and on the death of Masud II., the last Persian emperor of the Seljookian dynasty, received part of the province of Bithynia as his share in the division of the empire. Immediately afterward he attacked the Byzantine empire, leading his forces in July, 1299, through the unguarded passes of Mt. Olympus, and conquering the territory of Nicæa except the capital, which did not yield until 4 years later. The 27 years of Othman's reign are taken up with a series of wars, by means of which he slowly enlarged his dominions. He reduced the province of Marmora in 1309, subdued the whole of Bithynia and neighboring provinces, and by fortifying defensible posts gradually pushed on his conquests. Several times he had been repulsed in attacks upon Nicomedia (Isnik) and Prusa (Broussa); but the capture of the latter place by his son Orchan, the news of which event reached him on his dying bed, laid the foundation of the Turkish empire. From him it is called the Ottoman Porte; yet he never assumed the title of sultan, although he held a court at Cara-Hissar, and money was coined in his name. By the Turks his memory is held in great veneration.

OTHMAN Ibn Affan, the 3d oriental caliph of the Arabian dynasty, assassinated in Medina in 655. He was one of the earliest followers of the prophet, accompanied him in his flight from Mecca to Medina, and became on his return one of his secretaries. Designated by Omar as one of the 6 individuals to choose his successor, he himself was selected, on condition that he would govern the country according to the rules of the Koran, and ascended the throne at the close of 644. In 645 one of his armies reduced the province of Hamadan, and in 646 another expelled Yezdegerd from Persia, while a third took the principal cities of eastern Africa, after defeating near Tripoli Gregorius, who commanded in the name of the Greek emperor. Incursions were also made into Nubia, and in 648 the islands of Cyprus and Rhodes were plundered, these being the first maritime expeditions undertaken by the Arabs. But although fortunate in war, his domestic administration became unpopular on account of his partiality to his family and favorites, removing valuable officers to make way for these. He lost the silver signet ring used by the prophet, and considered by the Moslems as the palladium of their empire, and also gave offence by occupying the pulpit when in the mosque at prayers, instead of a few steps lower down, as had been the custom of his predecessors, except Mohammed. The discontent broke out into an open insurrection, in which Othman's life was nearly lost, and which was quieted with some difficulty by concessions. But Ayesha, the widow of the prophet, an enemy of the caliph, bribed Othman's secretary to send in his master's name a false order to the governor of Egypt, commanding him to put to death Mohammed, son of Abubekr; whereupon the latter marched to Medina, entered it unopposed, and invested the palace. Deserted by his soldiers, Othman, putting the Koran in his bosom, calmly awaited his fate. He was assassinated at the age of 82, or according to some of 90 or 95. He was the first caliph who caused an authentic copy of the Koran to be transcribed, the revision being intrusted to companions of the prophet.

OTHMAN IBN YAHIA ALCAISI, a Moorish scholar, born in Malaga, died in 1334. Little is known of him, but he is mentioned as having possessed great and varied talents, and was the author of a work entitled *Quæsita Grammatica*, and of treatises *De Hæreditate* and *De Mensuris Hispanis*. He was made governor of Malaga.

OTHO, MARCUS SALVIUS, a Roman emperor, born A.D. 32, died in 69. His family, originally of Ferentinum, traced its origin to the kings of Etruria. His father, Lucius Otho, held many places of honor and trust under the emperor Tiberius. During the early years of Nero's reign Marcus Otho was his intimate associate in various excesses and debaucheries; but Nero's love for Poppæa, whom Otho had seduced from her husband, caused a coolness between them, and Otho was virtually banished by an appointment as governor of Lusitania, where he remained 10 years. He was afterward active in the opposition to Nero, and aided in placing Galba on the throne, A. D. 68. As a reward for this service, he expected to be named Galba's successor, but the latter adopted Piso Licinianus. This disappointment, his jealousy against Piso, and his heavy debts, made him desperate; and he said publicly that if he were not emperor soon he would be ruined. He accordingly conspired among the guards, who proclaimed him emperor, and put Galba to death, after a reign of 7 months. But a few days before this event the legions in Germany had proclaimed their general Vitellius emperor, and Otho was scarcely seated upon the throne when he was called upon to oppose this new claimant. After an offer of a large sum to Vitellius to relinquish his claim, which was refused, he marched against him with an army, and beat the forces of Vitellius in 3 battles; but in a general engagement near Bedriacum, on the Po, S. W. of Mantua, the army of Otho was completely defeated after a hard-fought battle. Otho himself was not upon the field, and when the news was brought to him, he fell upon his sword, having reigned only 95 days.

OTHO I., THE GREAT, a German emperor, born in 912, died at Memleben, Thuringia, May 7, 973. In spite of the existence of a strong opposition to him in his own family, he succeeded his father, Henry the Fowler, and was crowned at Aix la Chapelle in 936. His whole reign of 36 years was a constant series of long and bloody wars. After quieting the opposition to himself, he was engaged in a struggle which lasted from 938 to 950 with Boleslas, duke of Bohemia, who was finally subdued and obliged to reinstate the Christian religion. He was also involved in a war with the dukes of Bavaria and Franconia, in which he was triumphant; and he strengthened his authority still more by conferring in 949 the duchy of Swabia upon his son Ludolf, that of Bavaria upon his brother Henry, and that of Lorraine upon his son-in-law Conrad, count of Worms. No less successful against foreign enemies, he made the Slavic tribes tributary as far as the Oder, and drove back the Danes, who had invaded Germany, across the Eider, and compelled their king to acknowledge his authority. In 946 he undertook a journey to France to aid his brother-in-law Louis (Outremer) against Hugo the Great, count of Paris, and, composing the differences between the king and his vassals, received as a reward all of Lorraine that was still in French hands. Invited by Adelaide of Burgundy, the beautiful widow of Lothaire, whose throne had been usurped by Berengarius II., he crossed the Alps in 951, defeated Berengarius, took Pavia, was crowned king of Lombardy, married Adelaide, and returned to Germany. But on account of Otho's affection for his wife, and for Henry, duke of Bavaria, the enemies of both, headed by Ludolf his son by his first wife (Eadgith, sister of the English king Athelstan), and by Conrad, duke of Lorraine, raised a civil war, which was not effectually quelled until 954. In the mean time the Hungarians had invaded Germany, and renewing their incursion in 955, besieged Augsburg, and were defeated (Aug. 10) on the Lechfeld near that city with terrible slaughter. Berengarius revolting, Otho again passed over into Italy, and was crowned king of that country by the archbishop of Mentz, and on Feb. 2, 962, was crowned emperor of the West by Pope John XII. The pope after his departure breaking his allegiance, Otho hastened again to Italy and called a council which deposed John, and chose in his place Leo VIII. The Romans soon after having expelled Leo and recalled John, Otho returned, besieged and took Rome, deprived Benedict V., the successor of John, of his popedom, and reinstated Leo. His plans of forming an alliance with the Greek empire, by marrying his son Otho to Theophania, having been defeated by the obstinacy of the Byzantine court, Otho invaded lower Italy, defeated the Greeks, and took Apulia and Calabria. The new emperor of the East, John Zimisces, hereupon eagerly consented to his wish, and an alliance was formed. Soon afterward Otho died in the height of his fame. He had during his reign founded the dukedom of Carinthia, created the two new marches of East and North Saxony, conquered Austria and upper and middle Italy, and begun the subjection of lower Italy.

OTHO II., a German emperor, son of the preceding, born in 956, died in Rome, Dec. 7, 983. He was crowned king of Rome during the lifetime of his father. He ruled for a time under the guardianship of his mother, but finally retired from court, and a civil war sprang up, in which he was opposed by his cousin Henry, duke of Bavaria, assisted by Harold, king of Denmark, and others. Otho defeated his cousin in 977, and gave Bavaria to his nephew, Otho, duke of Swabia. The French king Lothaire having invaded Lorraine in 978 and taken Aix la Chapelle, Otho collected an army, drove back the invaders, and in the pursuit overran Champagne and marched to Paris, a suburb of which he burned. Civil war having broken out in Rome, he passed over into Italy in 979, repressed the dissensions there, and then marched into lower Italy with the intention of wresting from the Greeks Apulia and Calabria. For a time he was successful, and took Naples, Salerno, and in 982 Taranto; but on July 13 of that year he was totally defeated at Basancello in Calabria by the Greeks, who had called n to their aid the Saracens of Sicily. Otho himself narrowly escaped. While meditating another expedition he died. He was of a darng and fierce disposition, ever forming great projects, but always hasty in their execution.

OTHO III., a German emperor, son of the preceding, born in 980, died in Paterno, near Viterbo, Jan. 21, 1002. When 3 years old he was crowned emperor, and during his minority the government was administered by his moher Theophania, his grandmother Adelaide, and the archbishop of Mentz. During his reign Germany was a scene of constant tumults and wars. Henry, duke of Bavaria, atempted to gain possession of his person while he was a child, but was defeated. In 984 Loraine was invaded by Lothaire, king of France, who did not succeed in effecting any thing. n 996 he went to Italy, repressed the insurrecion of Crescentius, placed one of his relatives, Bruno, on the papal throne under the name of Gregory V., and on May 21 was by him crownd emperor. After his departure Crescentius enewed his insurrection, and drove out Gregry. Otho returned in 998 and put Crescentius to death, and in 1000 made a pilgrimage to the rave of St. Adalbert, at Gnesen in Poland, nd founded there an archbishopric. Visiting Italy again in 1001, he was compelled to leave Rome on account of the hostility of the people, and shortly afterward died of fever, or according to some of poison, furnished by the widow of Crescentius. With him the male branch of the Saxon line disappeared. He was succeeded by Henry II.

OTHO IV., a German emperor, born in 1174, died May 19, 1218. He was the son of Henry the Lion, duke of Saxony and Bavaria, and of Matilda, sister to Richard Cœur de Lion. His youth was passed at the court of England. In 1197 the emperor Henry VI. of the house of Hohenstaufen died, and left his crown to his son Frederic II., then an infant. Otho was at that time duke of Saxony, and supported by the Guelphs; and disregarding the true heir, he claimed the imperial throne. His claim was opposed by Philip of Swabia, who had the support of the Ghibellines. A civil war ensued, which ended after 8 years by the flight of Otho to England, and Philip held the throne till 1208, when he was assassinated. Otho thereupon returned, was recognized throughout Germany as emperor, and was crowned at Rome by Pope Innocent III. in 1209. The pope made it a condition of this coronation that Otho should relinquish in favor of the church the nomination to certain benefices that had been an imperial prerogative, and exacted an oath to that effect; but the emperor violated his oath, and was excommunicated by the pope and formally deposed by the imperial electors. The rightful heir Frederic, then king of Naples and Sicily, was elected in his place. A second civil war now began, and the alliance of Otho with John, king of England, added to his enemies the king of France, Philip Augustus, by whom he was beaten and irretrievably ruined at the battle of Bovines in 1214. He made no further effort to regain the crown, but spent his remaining years in privacy and devotional exercises at his castle of Hartzburg.

OTHO I., king of Greece, 2d son of Louis I., king of Bavaria, born in Saltzburg, June 1, 1815. In his 17th year he was invited by the Greeks, who had then recently achieved their independence, to fill their throne; and the proposition being approved by the governments of Great Britain, France, and Russia, in a treaty concluded in London in May, 1832, and ratified soon after by the king of Bavaria, the young prince accepted the offer, and on Jan. 25, 1833, made his solemn entrance into Nauplia, accompanied by several officers of state who were to have the control of public affairs until he attained the age of 20. In June, 1835, he assumed the reins of government, and in the succeeding year was married in Germany to the princess Frederica Amelia of Oldenburg. The Bavarian ministers to whom he committed the management of the kingdom soon became unpopular, and as early as 1836 the people began to manifest their discontent by open rebellion. Since that time the breach between them and the king has never been wholly repaired, the former chafing under an administration composed largely of foreigners, and the latter wanting the tact or energy to offer any available plan of conciliation. Upon the day of his arrival with his consort at the Piræus, Feb. 14, 1837, he signed a decree removing some of the most obnoxious foreigners from office, and substituting the Greek language for the German in official documents. In other respects, however, the government continued to be a despotic one; and in Sept. 1843, the Greeks, despairing of procuring in any other way the constitution which they had been induced to expect from the king, surrounded his palace, and compelled him to form a cabinet in which his native subjects should be properly represented, and to call a national assembly to frame a constitution. The latter instrument was promulgated in the ensuing March, the Bavarian ministers were sent home, and an auspicious era seemed about to dawn upon Greece. The reactionary tendencies of the king and his advisers soon interfered with these prospects; attempts were made to remodel or abridge the concessions granted to the people, which the latter naturally resisted; ministry after ministry essayed without success to carry on the government; and under the influence of the queen, who is strongly pro-Russian in politics, the kingdom has become virtually an outpost of the Russian empire. So openly was the sympathy of the Greeks for the Russians manifested in the Crimean war, that an allied army of English and French was stationed at the Piræus, and a new ministry, distasteful to the king and queen, was forced into office. The people, perceiving in this an attempt to infringe the royal prerogative, sided for once with their sovereign, and the unpopular ministers were obliged to retire. Otho having no children by his marriage, the crown descends by special limitation to Adalbert of Bavaria, his brother.

OTIS, Harrison Gray, an American orator and statesman, born in Boston, Oct. 8, 1765, died there, Oct. 28, 1848. He was a nephew of James Otis, and the son of Samuel Allyne Otis, who was the first secretary of the U. S. senate, which office he held from the formation of the government till his death in 1814, without having been absent from his post one day. Harrison Gray Otis received his early education at the Latin school of his native town, and was graduated at Harvard college in 1783. He studied law with Judge John Lowell, and was admitted to the bar in 1786. His success as a lawyer was rapid and brilliant, and he soon became distinguished for his eloquence and grace as a public speaker. In 1796 he was elected a representative from Boston to the state legislature, and in the same year was chosen to succeed Fisher Ames in congress, where he soon became a prominent leader of the federal party. He served two terms in congress, and on his retirement in 1801 was appointed U. S. district attorney for Massachusetts. Subsequently he became a member of the state legislature, and was speaker of the house from 1803 to 1805; and in 1805 and for many successive years he was president of the senate. He was chairman of the legislative committee which in 1814 reported in favor of calling a convention of the New England states at Hartford to consider the best mode of redressing the grievances inflicted on those states by the war with Great Britain. He was a leading member of that convention, and was one of the three commissioners appointed by Massachusetts to go to Washington and make a representation to the federal government. In his "Letters in Defence of the Hartford Convention" (Boston, 1824) he warmly vindicated the character and intentions of that body. In 1814 Mr. Otis was appointed judge of the court of common pleas of Massachusetts, which office he held till 1818, when he took his seat in the U. S. senate, to which the legislature had elected him in the preceding year. In 1820, in reply to Mr. Pinckney in the debate on the Missouri question, he advocated with great force and eloquence the restriction of the extension of slavery. His term expired in 1822, and in the same year he became the federal candidate for governor of Massachusetts, but was defeated. In 1829 he was elected mayor of Boston, which office he held till 1832, when he retired from public life. "He was never rivalled," says the author of "The Hundred Boston Orators," "for eloquence by any politician of his native city or any of his native state, excepting only his noble kinsman and the accomplished Fisher Ames. The contour of his head was beautiful, with animated eyes and a ruddy complexion. He was rather tall, of noble bearing, graceful gestures, and courteous manners. William Sullivan aptly remarks of him that he was the orator of all popular assemblies—the guide of popular opinion in all the trying scenes of commercial restriction, embargo, and war. With a fine person and commanding eloquence, with a clear perception and patriotic purpose, he was the first among his equals, alike ready at all times with his pen and his tongue."

OTIS, James, an American orator, born in West Barnstable, Mass., Feb. 5, 1725, died in Andover, May 23, 1783. He was graduated at Harvard college in 1743, studied law in Boston, was admitted to the bar in 1748 in Plymouth, where he was then residing, and in 1750 removed to Boston. In 1760 he published a treatise entitled the "Rudiments of Latin Prosody, with a Dissertation on Letters, and the Principles of Harmony in Poetic and Prose Composition." His public career dates from his argument, in 1761, on the question whether the persons employed in enforcing the acts of trade should have the power to invoke generally the assistance of all the executive officers of the colony. Otis was at that time advocate-general, but, deeming the writs of assistance illegal, refused to argue in behalf of them, and resigned. He was then employed upon the other side, and his speech on the occasion produced a profound impression. "Otis was a flame of fire," says

John Adams; "with a promptitude of classical llusions, a depth of research, a rapid summary of historical events and dates, a profusion of egal authorities, a prophetic glance of his eyes nto futurity, and a rapid torrent of impetuous eloquence, he hurried away all before him. American independence was then and there born. Every man of an immense crowded audience appeared to me to go away as I did, ready to take arms against the writs of assistance." The judges evaded giving a decision; and the writs, although secretly granted at the next term, were never executed. The next year Otis was elected to the legislature, in which body his fiery spirit and impassioned eloquence soon placed him at the head of the popular party, and justified his claim to the title of the "great incendiary of New England." On June 6, 1765, he introduced a motion advising the calling of a congress of delegates from the several colonies. The motion was adopted, and a circular letter was sent to the other colonies, in consequence of which the stamp act congress met in New York in October of that year. Otis was one of the delegates to this body, and a member of the committee to prepare an address to the house of commons. When Charles Townshend's plan of taxation had passed parliament, the Massachusetts house sent in 1768 another circular letter requesting the colonies to unite in some suitable measures of redress. On the message of Gov. Bernard requiring the letter to be rescinded Otis made a speech, pronounced by the friends of the government to be "the most violent, insolent, abusive, and treasonable declaration that perhaps ever was delivered." The house refused to rescind by a vote of 92 to 17. In the summer of 1769, finding that the commissioners of customs had sent accusations against him to England, charging him with treason, he inserted an advertisement in the "Boston Gazette," denouncing them in a bitter manner. The next evening he met Robinson, one of the commissioners, in a coffee house. An altercation ensued, ending in an affray, in which Otis was overpowered by numbers, and severely injured. To a cut in the head received on this occasion his subsequent derangement is attributed. In the action instituted against Robinson, he obtained an award of £2,000, which however he gave up on receiving from the defendant a humble written apology. In 1770 he retired to the country for his health, but in 1771 was again chosen a representative. This was his last appearance in public life, except at long intervals. Nearly all the rest of his life he was deranged. During the last two years, which were spent at Andover, his mind was thought to be restored, and he returned to Boston and resumed the practice of law. But the lucid interval proving only temporary, he went back to Andover, and was shortly after killed by a stroke of lightning while standing at the door of the house in which he lodged. During his derangement he destroyed all his papers. He had previously published pamphlets entitled "A Vindication of the Conduct of the House of Representatives" (1762); "The Rights of the British Colonies asserted" (1764); and "Considerations on behalf of the Colonists" (1765). His temper was irritable and impulsive; but he was easily conciliated, and his public course in consequence often appeared inconsistent.

OTOMI, one of the principal aboriginal families of Mexico, at one time having their seat on the plain of Mexico, but subsequently incorporated in the republic of Tlascala. Although, according to tradition, springing from the same root with the Nahuatlecas, they spoke a language radically different, and in nearly all respects peculiar, being essentially monosyllabic. The words consist of one or two syllables; those of three are supposed to have been formed after the Spanish conquest. Each syllable has a meaning; and in words of more than one syllable each preserves its primitive meaning. There are but few exceptions to these rules. Comparisons have been instituted between the Otomi and Chinese, which is also monosyllabic, and many sweeping inferences drawn from this common peculiarity; but they have no strong vocal resemblances, and probably approximate only in those particulars which are the necessary consequence of their monosyllabic character. The Otomi is the exceptional language of America; that is to say, it has fewer elements in common with the American system of languages than any other on the continent. In this respect it holds a position corresponding with that of the Basque in Europe.

OTRANTO (anc. *Hydruntum*), a seaport town of Naples, situated on a strait of the same name at the E. extremity of what is called "the heel" of Italy, opposite Cape Linguetta in Albania, 23 m. S. E. from Lecce; pop. about 5,000. The town has received celebrity from the title of Walpole's romance. It contains a cathedral and some Roman remains. It was taken by the Turks in 1480, and seems to have never recovered from the check then given to its prosperity. Under the first French empire it gave the title of duke to Fouché, Napoleon's minister of police.—The ancient Hydruntum, on a branch of the Appian way, was the great highroad of traffic between Greece and Rome.

OTRANTO, DUKE OF. See FOUCHÉ.

OTSEGO, a central co. of N. Y., bounded W. by the Unadilla river, and watered by the Susquehanna river and Wharton, Butternut, Otego, Schenevas, and other creeks; area about 1,050 sq. m.; pop. in 1855, 49,735. Its surface is traversed from N. E. to S. W. by several ridges, between which are broad valleys. Otsego lake, 8 m. long and 1 m. broad, is in the N. E., and has an elevation of 1,193 feet above tide; and Schuyler lake, about 3½ m. long, is in the N. W. The soil is various in quality, but generally fertile. The agricultural productions in 1855, the largest of any county in the state, were 59,124 bushels of wheat, 903,647 of oats, 340,170 of Indian corn, 412,703 of potatoes, 108,069 tons of hay, 3,075,206 lbs. of butter, 1,638,493 of cheese, and 3,122,258 of hops. There were 7 cotton factories, 87 grist mills, 142 saw mills, 26 tanneries, 117 churches, and 18,181 pupils attending public schools. Capital, Cooperstown.

OTTAR OF ROSES. See Attar of Roses.

OTTAWA. I. A N. co. of Ohio, bounded N. E. by Lake Erie and S. E. by Sandusky bay, and intersected by Portage river; area, about 350 sq. m.; pop. in 1850, 3,308. It has a nearly level surface and fertile soil. The productions in 1850 were 55,584 bushels of Indian corn, 23,288 of wheat, 12,968 of oats, 19,326 lbs. of wool, and 4,445 tons of hay. There were 5 churches, and 1,294 pupils attending public schools. It is intersected by the Cleveland and Toledo railroad, which passes through the capital, Port Clinton. II. A W. co. of Mich., bordering on Lake Michigan, intersected by the White, Muskegon, and Grand rivers, and also drained by Black and Pigeon rivers and Crockery creek; area, about 1,000 sq. m.; pop. in 1850, 5,587; in 1860, 13,222. It has an undulating surface and fertile soil. The productions in 1850 were 3,814 bushels of wheat, 28,995 of Indian corn, 25,152 of potatoes, and 1,502 tons of hay. The Detroit and Milwaukee railroad intersects the county, having its terminus at the capital, Grand Haven, opposite Milwaukee, with which it has steamboat communication.

OTTAWA, a city and the capital of La Salle co., Ill., situated at the junction and on both sides of the Illinois and Fox rivers, and on the line of the Chicago and Rock Island railroad, 84 m. S. W. from Chicago, with which it is also connected by the Illinois and Michigan canal; pop. in 1860, 7,000. The place has an active trade, principally in breadstuffs, of which it exports probably more than any other interior city of the state. It has also some heavy manufacturing establishments, chief among which is a starch factory in successful operation, with capacity to consume 700 bushels of corn per day. It has also 5 flouring mills, several founderies and machine shops, planing mills, &c. The Fox river has here a fall of 29 feet, affording immense water power. The city is well provided with public schools and churches.

OTTAWA, Canada. See Bytown.

OTTAWA RIVER. See Canada, vol. iv. p. 329.

OTTER, the name of several species of carnivorous mammals, of the sub-family *lutrinæ*, and family *mustelidæ* or weasels. The sub-family includes the 4 genera *lutra* (Linn.), *pteronura* (Gray) or *pterura* (Wiegm.), *enhydra* (Fleming), and *aonyx* (Lesson); they are all eminently aquatic animals, feeding principally upon fish. In the genus *lutra* the dentition is: incisors $\frac{3-3}{3-3}$, canines $\frac{1-1}{1-1}$, premolars $\frac{4-4}{3-3}$, molars $\frac{1-1}{2-2} = 36$; the upper laniary is very large, with a large accessory internal tubercle, and the lower posteriorly tuberculated; the ears are small and far apart; the head broad and blunt, and flat above; the body thick and elongated; the feet short and webbed; tail long, round, depressed toward the tip, and flat beneath. The species are found in all parts of the globe, and are distinguished with difficulty from the similarity of their colors. The American otter (*L. Canadensis*, Sab.) is about 4½ feet long, of which the tail is 1½, and the weight from 20 to 25 lbs.; a considerable part of the muzzle is bare, and the nostrils are large and open; the eyes very small, and very far forward; the neck long; legs short and stout. The color above is dark glossy brown, slightly lighter beneath, lower surface and sides of the head and neck dusky white. Rather awkward on land, it is a very expert diver and rapid swimmer, and very voracious; it often remains more than a minute under water, retiring with its fishy prey to a half-sunken log or the shore to devour it; it frequents clear and rapid streams or large ponds, and makes a burrow in the banks, lined with leaves and grasses, the entrance being under water. Otters have a singular habit of sliding down wet and muddy banks or icy slopes, apparently for sport, of which the hunters take advantage by setting traps at the foot of the slide; they are also taken in sunken traps baited with fish; when killed in the water, the body sinks from the solidity of the bones. When taken young, they are easily domesticated. They bring forth a litter of 2 or 3, between February and April, according to latitude. They are found over almost the whole of North America, and perhaps a portion of South America; rare in the Atlantic states, they are not abundant anywhere in the settled regions, but most so in the British possessions, whence several thousand skins are annually carried to England; a good skin is worth from $4 to $8, according to the size and the darkness and fineness of the fur; the fur is of two kinds, like that of the beaver, one being short, soft, and dense, the other longer, coarser, and scattered through the first, and it is much esteemed for caps and gloves. The *L. lataxina*, or *lataxina mollis* of Gray, is only the Carolina variety of the Canada otter; and the *L. Californica* (Gray) is perhaps also only a western variety. The *L. Brasiliensis* (Ray), the *lontra* or river wolf of South America, is a distinct species, having the muzzle entirely hairy except around the nostrils; the color is yellowish brown, and the throat whitish; the length is about 3½ feet; they live in troops, rising frequently to the surface of the streams, and snapping like dogs. The European otter (*L. vulgaris*, Erxl.) is about 3¼ feet long, of which the tail is 15 inches, resembling in colors and in habits the Canada otter; its fur is valuable, and its flesh, like that of several other aquatic mammals, may be eaten by Catholics during Lent. It is found throughout Europe and northern and temperate Asia, and its hunting affords great sport. The Pondicherry otter (*L. nair*, F. Cuv.), probably a variety of the common species, is frequently domesticated, and taught to drive fish into the nets, or even to catch them in the teeth and bring them to its master.—In the enus *pteronura* (Gray) the muzzle is hairy; he feet large and widely webbed; the tail longated, sub-cylindrical, with a fin-like dilaation on each side of the hinder half; it seems ntermediate between *lutra* and *enhydra*. The P. *Sambachii* (Gray), from Demerara, is of iver-brown color, with chin and throat yelowish; the length is about 28 inches, of which he tail is 12; the genus is peculiar to South America, and may be distinguished from *enhydra* by the greater size of the fore and the esser of the hind feet. Delalande discovered t the Cape of Good Hope an otter which has o claws on the fore feet, and mere vestiges of hem on the hind in the adult condition; of his Lesson formed the genus *aonyx*. The lawless otter (*A. inunguis*, Less.) is larger han the European otter, with longer legs and ess palmated feet; the color is chestnut brown bove, grayish on the head and shoulders, and hitish below.—The sea otter (*enhydra marina*, Flem.) resembles a seal more than an oter; the head is short and very broad, the ears ery small, the nose with a naked muffle; the oes of the fore feet very short, bound in a hickened membrane, densely haired and covering the claws; in the hind feet the outer toe s the longest, and these extremities are far backward as in the seals; there is one premolar ess on each side of the upper jaw, and the adults are said to have only 4 lower incisors; n vol. iii. of Audubon and Bachman's "Quadupeds of North America," p. 170, the dental formula is given as: incisors $\frac{6}{4}$, canines $\frac{1-1}{1-1}$, molars $\frac{5-5}{4-4}$ = 38. The body is very long, covered with a thick glossy fur; tail less than $\frac{1}{4}$ he length of the body, strong and depressed. The length in the adult is more than 5 feet, of which the tail is 1 foot; there are 2 ventral mammæ; this is the only described species. The color is chestnut brown, but black in the adult in the proper season; there is a grayish int about the head and neck; the fur is exceedingly fine and long. It inhabits the coasts and islands of the north Pacific and about Kamtchatka, coming down on the American coast as far as Monterey; it is essentially marine in its habitat, sometimes going far from he shore, but generally keeping near the coast both for shelter and food; it is shy and timid, and generally hunted from boats. The skins used to form an important article of commerce between the Russians and the Chinese and Japanese merchants, in whose countries the fur s highly esteemed; a common price for a single skin used to be $30 or $40. It is found principally between lat. 49° and 60° N. on the N. W. coast of America; the animal is now comparatively rare, except on the coasts above he influence of the California gold fever. The food consists of fish, lobsters, and cephalopods. t is stupid and inoffensive, and trusts for escape from its pursuers only to its speed in swimming; it produces on land a single young one at a birth; the flesh of the young is said o be relished by the hunters. The habits of this singular animal are but little known, and perfect skins and skulls are exceedingly rare either in private or public collections.

OTTERBEIN, Philip William, the founder of the church of the United Brethren in Christ, born in Dillenburg, Germany, June 4, 1726, died in Baltimore, Md., Nov. 17, 1813. He was ordained to the ministry in the Reformed church at Herborn in 1749. In 1752 he was sent to America as a missionary, under the auspices of the synod of Holland. He was first settled at Lancaster, Penn.; afterward served congregations at Tulpehocken and York, Penn., and Frederic, Md.; and in 1774 went to Baltimore, where he established an independent congregation, over which he presided about 40 years. At Lancaster, shortly after his arrival in this country, he experienced what he regarded as a change of heart, and as a consequence was led to adopt what were then looked upon as "new measures," such as prayer meetings, class meetings, and open air meetings held in groves during several successive days. Although he was a settled pastor, he made numerous and long itinerant tours. He soon associated with himself other preachers of like faith and zeal; and at the time of his death there were united with him in the church to which his labors gave rise about 100 preachers and 20,000 members. He was a man of extensive learning, spoke and wrote the Latin language with great ease, and was characterized by earnest piety and quenchless zeal. When the Methodist preachers came to Pennsylvania and Maryland, he coöperated with them, and assisted Dr. Coke in the ordination of Francis Asbury. The church to whose interests his life was devoted is spread over large portions of the northern and southern states, and numbered in 1859 about 84,000 communicants.

OTTIGAMIES. See Fox Indians.

ÖTTINGER. See Oettinger.

OTTO OF ROSES. See Attar of Roses.

OTTOCAR II., king of Bohemia, born about 1230, killed in battle, Aug. 26, 1278. During his youth he headed an insurrection against his father, King Wenceslas I., which for a time was successful, but resulted finally in his defeat and imprisonment. After his release he gained possession of Austria and Styria by marrying Margaret, the widow of the duke of Austria, although she at that time was 46 years old, and he himself but 23. For the maintenance of these acquisitions he had during the earlier part of his reign many and severe struggles with the Bavarians and Hungarians. He ascended the throne in 1253, and in 1254 undertook a crusade against the pagan Prussians, which was completely successful; and during this campaign he built the city of Königsberg. Having divorced his wife, he married the Hungarian princess Cunigunda in 1261, and in 1269 the duchies of Carinthia and Carniola came into his power. His dominions now extended from the borders of Bavaria to Raab in Hungary, and from the Adriatic to the Baltic. After the death of Richard of Cornwall, the emperor of Germany, he and Alfonso of Castile were candidates for the succession; but the choice fell on Rudolph, count of Hapsburg. Ottocar refused to submit to the authority of the elected monarch; but on Rudolph's marching into his dominions and laying siege to Vienna, he consented to a compromise in which he was obliged to give up his claims to Austria, Styria, Carinthia, Carniola, and the Wendish territory, and submit to other humiliating conditions. Not long after, however, he broke the treaty, and placed himself once more in hostility with the empire, but was defeated and slain in a battle with the imperial troops between Weidendorf and Jedensberg, usually called the battle of the Marchfeld, from the field on the March on which it was fought. Ottocar, though a haughty and luxurious prince, did great service to his country by repressing the power of the nobility, by the elevation of the middle classes and the protection of the peasants, by the founding of cities and schools, and the better administration of justice. He was succeeded by his son Wenceslas II., the last but one, in male line, of the house of Przemysl.

OTTOMAN EMPIRE. See TURKEY.

OTWAY, THOMAS, an English poet, born in Trotton, Sussex, March 8, 1651, died in London, April 14, 1685. He was educated at Winchester and at Christchurch, Oxford, but left the university without taking a degree, and set out for London, where through necessity he became an actor in 1672. He appeared only once, however, for "he being not used to the stage," says Downes in his *Roscius Anglicanus*, "the full house put him to such a sweat and tremendous agony, being dash't, spoilt him for an actor." The next 8 years he led a dissolute life, his wit introducing him to the society of young men of fashion. He did not begin writing till 1675, when his tragedy of "Alcibiades" appeared. Patronized by the earl of Rochester, who had recently quarrelled with Dryden, he brought out the next year "Don Carlos," which was very successful, and "got more money than any preceding modern tragedy." In 1677 his tragedy of "Titus and Berenice," translated from Racine, and his farce "The Cheats of Scapin," from Molière, were acted; and the same year he produced a comedy entitled "Friendship in Fashion," remarkable for its want of wit and decency, and which, though considered "very diverting" at the time, was hissed off the stage in 1749 for its immorality. In 1677 Otway received through the agency of the earl of Plymouth, the king's natural son, a commission as cornet in a regiment of horse designed for Flanders. But the troops being shortly after disbanded, he returned to London miserably poor, and began again to write. His situation was now deplorable. Rochester had become his enemy, and satirized him in a lampoon entitled "A Session of the Poets," because Otway had presumed to fall in love with a famous actress, Mrs. Barry, to whom Rochester at that time was attached. In 1680 Otway produced the tragedy of "Caius Marius," which met with considerable success; and having ranged himself on the side of Dryden and the tories, he took the opportunity of satirizing the opposite party both in this play and in "The Poet's Complaint to the Muse," published the same year. His tragedy of "The Orphan" appeared in 1680. "This is one of the few plays," says Johnson, "that keep possession of the stage, and has pleased for almost a century through all the vicissitudes of dramatic fashion. It is a domestic tragedy drawn from middle life. Its whole power is upon the affections; for it is not written with much comprehension of thought or elegance of expression." Reduced to the necessity of writing for his bread, he produced in 1681 "The Soldier's Fortune," and in 1684 its second part, "The Atheists," both of which were successful. His greatest performance, however, was "Venice Preserved," which afforded him a field for the display of his peculiar pathetic power. This was first performed in 1682, and is still occasionally acted. Otway wrote also some minor poems, and translated from the French the "History of the Triumvirate;" but his early death prevented him from fulfilling the promise of poetic excellence which he had given. "He died," says Dr. Johnson, "in a manner which I am unwilling to mention. Having been compelled by his necessities to contract debts, and hunted, as is supposed, by the terriers of the law, he retired to a public house on Tower hill, where he is said to have died of want; or, as it is related by one of his biographers, by swallowing, after a long fast, a piece of bread which charity had supplied. He went out, as is reported, almost in the rage of hunger, and finding a gentleman in a neighbouring coffee house, asked him for a shilling. The gentleman gave him a guinea; and Otway going away, bought a roll, and was choked with the first mouthful. All this, I hope, is not true; and there is this ground of better hope, that Pope, who lived near enough to be well informed, relates in Spence's 'Memorials' that he died of a fever, caught by violent pursuit of a thief that had robbed one of his friends. But that indigence, and its concomitants sorrow and despondency, pressed hard upon him, has never been denied, whatever immediate cause might bring him to the grave." The account given by Pope of his death is now generally believed to be the more trustworthy.

OUDE, a British province in the N. part of Hindostan, lying between lat. 25° 34' and 29° 6' N., and long. 79° 45' and 83° 11' E.; bounded N. and N. E. by Nepaul, E. by the British districts of Goruckpoor, Azimgurh, and Jounpoor, S. by Allahabad and Cawnpore, S. W. and W. by Furruckabad and Shahjehanpoor, and N. W. by Pilleebheet and Kumaon; length from S. E. to N. W. 270 m., breadth 160 m.; area, 23,738 sq. m.; pop. [illegible]. It belongs for the most part to the great plain of Hindostan, but rises gradually [illegible] the N. W., and in the N. E. and N. reaches the base of the Sub-Himalaya or continuation of the Sivalik range. A part of this latter region belongs to the Terrai, a black marshy tract stretching along the borders of Nepaul, and covered with almost impenetrable forests. With the exception of this frontier region, the whole country is almost a dead level. The principal rivers are the Ganges, which forms the S. and S. W. boundary, the Saee, Goomtee, Goggra or Sarjou, Ramgunga, and Raptee, all of which have a general S. E. course. Though most of them are streams of considerable magnitude, they are constantly decreasing in volume, and within the present century the Goomtee has fallen 5 or 6 feet—a fact which has been attributed in part to the clearing of so much of the jungles from which the rivers received numerous streamlets. The annual fall of rain is also thought to be diminishing, and water is obtained from wells with less facility than it was formerly. The rivers are all very tortuous, and are subject to great changes of volume at different times in the year, the Ganges and Goggra rising in the rainy season as much as 30 feet. The Ganges also annually changes its course within the limits of a bed 4 m. in average width. There are no permanent lakes, but large ponds called *jhils* are formed by the rains in the wet season, and generally dry up or are drained off by the rivers in hot weather. The largest of these, situated 8 m. N. W. from Mankipoor, in a deserted channel of the Ganges, is 16 m. long and 8 m. broad, and in the dry season is converted into a pestilential marsh in which rice is sown. The soil of Oude is on the whole the richest in India. It is of various qualities, however, and in some places requires abundant irrigation and laborious tillage. Small nodules called *kankar*, formed of the elements of chalk and oolite, are found in great quantities, and serve a useful purpose in giving sufficient consistency to some of the river banks to keep them in permanent channels. Ridges of them 2 or 3 yards wide intersect the bed of the Goomtee every 5 or 6 miles; and they have formed in different parts of the country hillocks from 70 to 80 feet high. Common salt and saltpetre are obtained from the earth by washing. The climate is generally dry and subject to great extremes of heat and cold, the thermometer sometimes rising to 112° and falling to 28°. November, December, January, and February are the coldest months, and the next four the hottest, a sultry west wind, loaded with fine gray dust, blowing at noon, and ceasing toward evening, or a damp malarious east wind from the swamps of Bengal and Assam occasionally prevailing all day. The power of the hot winds is annually increasing with the diminution of rain. Violent hurricanes and thunder storms are sometimes experienced. The rainy season begins about the middle of June, and lasts from 2 to 4 months. The crops consist principally of wheat, barley, gram, masure (*ervum lens*), mustard, rice of remarkable delicacy and whiteness, millet, maize, joar (*holcus sorghum*), bajra (*holcus stativus*), til (*sesamum orientale*), various kinds of pulse and oil seeds, sugar cane (which is cultivated very unskilfully, though the soil is well adapted to it), opium (which is ill prepared and much adulterated), tobacco, indigo, hemp, various esculent vegetables, and cotton of good quality, though not in large quantity. Groves of excellent fruit trees, among which are the mango, tamarind, and mahua (*bassia latifolia*, from whose flowers is distilled a spirituous liquor, and whose nuts yield an oil which is used instead of butter), are found in different parts of the country, and particularly near Fyzabad, where great care is taken to perpetuate them. The domestic animals of Oude include sheep, goats, cows, bullocks, and tame buffaloes. Among the wild animals are the elephant, tiger, rhinoceros, wolf, hyæna, jackal, fox, hare, deer, nylgau, wild hog, porcupine, otter, mongoose, squirrel, rat, muskrat, wild cat, bat, and flying fox. The tigers, wolves, and hyænas cause great destruction of life. Of the numerous varieties of birds, the parrots, which do great damage to the crops, and the kingfishers, which exist in many splendid species, are the most deserving of mention. Reptiles and insects are abundant, and crocodiles are sometimes seen in the larger rivers.—The great bulk of the people are Hindoos, though the dominant race was Mohammedan for many ages before the British annexation. There are probably 100,000 families of Pausies, an aboriginal tribe, generally robbers by hereditary profession, and some of them poisoners. The Brahmins are the most numerous class of the inhabitants, and there are 29 Rajpoot tribes. From these two classes the sepoys of the Bengal army have been mainly recruited. Hindostanee is the language most in use, with a greater admixture of Persian and Arabic and less of Hindee than in the more easterly provinces. The houses of the people are generally mud or unburnt brick, and the walls are carried up 6 or 7 feet above the roof to form a sort of enclosed court for the use of the women. This court is covered during the rains by a light temporary roofing of bamboo and grass. The rooms have no ceilings, and the floors are of earth well packed and smoothed. The most characteristic feature in the social economy of Oude is that of the village communities. Each village forms, as Lord Metcalfe justly termed it, a separate little republic. It has its accountant, public servants, priest, carpenter, smith, washerman, and watchman, who are generally paid by dues claimable from the grain produce of each land owner. The payment of a land tax is one of the oldest institutions of the country. It is levied by a rate upon the land, implements of husbandry, or crops, and is paid to the government officer through the head man of the village. The people value their right of property in the soil above all other worldly goods, and cling to their ancestral lands with an affection unsurpassed in any other country. The cultivators themselves, as a general rule, own the fields, but in many cases they have been dispossessed by a class of men called *talookdars*. These are persons who farm the revenue of a collection of villages, known as a *talookah*, paying to the government a fixed sum, and exacting from the villagers as much as possible. In some cases the talookdars were hereditary chiefs of Rajpoot tribes, and so became naturally the channels of communication between their people and the government. In others they were originally petty government officials who obtained in various ways the privileges of hereditary farmers of the revenue. They frequently under the native rule laid upon the cultivators imposts which it was impossible for them to pay, and on their delinquency threw them into prison until they executed a deed constituting the talookdars proprietors of the soil. In some instances they obtained such deeds by the more summary process of fire and sword. The dispossessed villager then became the tenant of his oppressor. Some of the more spirited took the law into their own hands, retired into the jungles, and, from committing raids upon all whom the talookdar undertook to settle upon their patrimonial lands, gradually became *dacoits* or professional robbers. At the time of the British occupation the country was infested with such depredators. The East India company in most cases reinstated the villagers in their rights, and held the fraudulent and extorted deeds of conveyance at their proper worth. Where the talookdar could show full and undisputed possession for 12 years, he was acknowledged as proprietor; and where his income was greatly reduced by the withdrawal of villages from his talookah, or other circumstances of hardship appeared, he was allowed 10 per cent. on the government revenue.—The only good road in the province is that from Cawnpore to Lucknow. A railway, however, has been projected, which will pass through Lucknow, and connect it with Benares and Delhi. The province is directly subject to the governor-general in council, and for administrative purposes is divided into 12 *chaklas* or counties, which are subdivided into *pergunnahs* or districts. The principal cities and towns are Lucknow, the capital, Fyzabad, Oude or Ayodha, the ancient capital, Roy Bareily, and Shahabad.—Oude, under the name of Kosala, is supposed by many writers to have been one of the earliest seats of Indian civilization, and Buchanan conjectures its first settlement to have taken place about 1366 B. C. The reign of Rama, the hero of Hindoo romance and the conqueror of Ceylon, is assigned to the 8th century B. C.; and the poem of the *Ramayana*, which narrates his exploits, is supposed by Prof. Wilson to have been written about 300 B. C. Nothing of importance is known of the kingdom before A. D. 1195, when it was conquered and united to the empire of Delhi by Mohammed Bakhtiyar Ghilji, a lieutenant of Cuttub-ud-deen, the founder of the Patan or Afghan dynasty. It submitted to Baber (1528) after an obstinate struggle, but frequently revolted against the Mogul sovereigns; and about 1753 Suffder Jang, nabob vizier of the province, wrested from the emperor Ahmed Shah a grant in perpetuity of Oude and Allahabad, and thus founded an independent dynasty which lasted until the British annexation. His son and successor Sujah-ud-Dowlah became one of the most powerful princes of India, but, having formed an alliance with Meer Cossim against the English, was defeated by the latter at Patna, May 13, 1764, and at Buxar on the 23d of October. In 1765 the British occupied Lucknow and forced Sujah as a condition of peace to transfer the provinces of Corah and Allahabad to the emperor Shah Alum. Three years later the East India company judged it necessary to insist on a reduction of the nabob's military force, which, by a treaty in Nov. 1768, was accordingly limited to 35,000 men. Shah Alum, having in 1773 transferred his claim upon Corah and Allahabad to the Mahrattas, was considered to have forfeited those territories, and the nabob was permitted to resume them on payment of 5,000,000 rupees to the English. With the assistance of English troops, whose services he purchased for £400,000, Sujah next undertook a campaign against the Rohillas, and, having routed them in a decisive battle, April 23, 1774, annexed the greater part of Rohilcund to his dominions. His son and successor Azof-ud-Dowlah, a weak and dissolute prince, ceded to the British Benares, Juanpoor, and some contiguous districts, in return for which the company agreed to defend him against all his enemies, and to keep a large body of troops in his territory, for whom however he was to pay heavily. This military force was several times augmented, on the ground that the tranquillity of the country and the safety of the surrounding British possessions required it. Immense sums were also demanded from the nabob for the support of an English resident and other English officials, so that the province was drained of its resources and parcelled out among rapacious farmers of the revenue, many of whom in time set themselves up as independent princes. The nabob soon came to regard his white allies as a frightful incubus which no exertion could shake off. He begged to have the troops withdrawn, but the British refused. At length, in Sept. 1781, he signed a treaty at Chunar with the governor-general Warren Hastings, by which he obtained a release from some of his most burdensome engagements on condition of applying the wealth of the two begums or princesses, his mother and grandmother, to the liquidation of his debt to the East India company, which then amounted to £1,400,000. The jaghires or lands taken from the begums he was to retain, and their money, of which they were said to have immense sums concealed, was to be paid over to the English. The most violent and unjustifiable means were used to get possession of the treasure, and the spoliation of the begums of Oude afterward acquired a world-wide celebrity through the denunciations of Burke and Sheridan. From 1777 to 1786 the nabob paid the company £800,000 per annum, beside the expenses of various English officers, one of whom, an agent of the governor-general, received an annual salary of £22,800. In 1787 the subsidy was reduced to £500,000 per annum, but it was increased in 1797 to £550,000, and in 1798 to £760,000, beside which the nabob ceded the fortress of Allahabad and gave £80,000 for its repair and £30,000 for the repair of Futtehghur. In 1801 the pecuniary subsidy was commuted for a cession of various territories, equal to one half of the whole province and yielding an annual revenue of £1,352,000. A loan of £1,000,000 was obtained from the nabob Ghazee-ud-deen Hyder in 1814, and another of the same amount in 1815. These loans were liquidated in 1816 by the transfer to Oude of the Terrai, or marshy tract, formerly belonging to Nepaul. In 1819 the nabob with the consent of the East India company formally renounced the nominal allegiance which he had hitherto retained to the Great Mogul, and assumed the title of king. In 1825 he made a loan in perpetuity to the British of £1,000,000, at the unvarying interest of 5 per cent.; in 1829 a loan of £640,000, the interest of which was to be appropriated to the support of certain members of the royal family; and in 1833 a loan of £30,000, the interest of which was to be given to the poor of Lucknow. Nusseer-ud-deen, who reigned from 1827 to 1837, made an effort at first to reform the administration, but soon gave himself up to sensual pleasures. The succession of his uncle Mohammed Ali Shah was contested by the late king's son and the Padshah Begum, Nusseer-ud-deen's principal wife; but Mohammed was supported by the British, and his rivals were soon put down. He was succeeded in 1842 by his son Umjud Ali Shah, under whom the state of the kingdom grew worse and worse. The British urged reforms, and intimated that unless they were effected within a limited time the country would be placed under their management. The king however seems to have had but little power. Under the reign of Saadut Ali (1798–1814) Oude had enjoyed unusual prosperity; but his son Ghazee-ud-deen Hyder (1814–'27) had dissipated the national treasures, and, being withheld by treaty from keeping up a strong army of his own, and but indifferently supported by the British troops, had seen the kingdom parcelled out among a number of petty turbulent princes who defied his authority and proved insuperable obstacles to all measures for improvement. It was now too late to reëstablish order, but Umjud Ali succeeded in replenishing the treasury, and on his death in 1847 left about £1,500,000 to his son Wajid Ali, the last king of Oude. This prince is said to have been more profligate and imbecile than almost any of his predecessors. While he devoted himself to his pleasures the royal revenues dwindled away, and the semi-independent princes grew more and more powerful. They built fortresses, banded their followers into formidable armies, and laid all the surrounding country under contribution. In a communication dated March 15, 1855, addressed to the Indian government by Gen. Outram, British resident at Lucknow, the condition of the country was described as truly deplorable. The people were heavily taxed, though but a small part of the revenue found its way to the public treasury. The revenue collected in 1854 was 12,203,082 rupees ($6,000,000), of which only 3,600,000 rupees ($1,800,000) had actually been paid over to the government. There were no courts of law except at the capital, and the judges and all other officers together amounted to only 61, all of whom were venal. The police was corrupt and inefficient. The army numbered 58,904 men, supported at a cost of 4,199,890 rupees; it was rapacious, extortionate, licentious, undisciplined, and cowardly. Suttee, or the burning of widows, was practised, an average of 7 cases occurring annually. The statistics of crime from 1848 to 1854 showed on an average annually 147 dacoitees, 1,578 persons killed and wounded, 78 villages burned and plundered, and 212 persons forcibly carried off. Oppressions and cruelties of every description were continually practised without restraint. The royal government was virtually at an end, when the East India company, in Jan. 1856, caused a treaty to be drawn up, the effect of which would have been to transfer to them the entire administration of the kingdom, while it made provision for the dignity and affluence of the king and his family. This treaty the king refused to sign, whereupon a proclamation was issued by the governor-general in council, Feb. 7, 1856, declaring the deposition of the king of Oude and the absolute annexation of the country to the possessions of the East India company. This measure was not consummated without loud expressions of disapproval on the part of many of the English people and some of the East India officials. The deposition of the king was regarded as a violation of treaty engagements, and as both impolitic and unjust. His majesty was allowed to retain his titles and was granted a liberal pension, but the government refused to make any engagement for the continuation of the same privileges to his descendants. He removed to Calcutta, and fixed his residence at Garden Reach on the outskirts of the city, while the queen mother, accompanied by his majesty's son and brother, visited England with a numerous retinue, arriving in London in Aug. 1856. She was received with great kindness by Queen Victoria, and remained in the country for a considerable time urging her claims for redress, but without avail. She finally died in Paris in 1858. The talookdars of Oude felt much aggrieved by the regulations of the East India company respecting the tenure of property, and the population in fact never voluntarily submitted to the change of rulers. Hence, when the sepoy mutiny broke out in 1857, the rising in Oude was not confined to the soldiers, but became a popular war for independence. The rebel sepoys concentrated about Lucknow, while the talookdars held themselves in a state of insurrection throughout the province, armed their retainers, and threw themselves into their forts, whence the British frequently could not dislodge them without heavy loss. The complicity of the ex-king was strongly suspected, and he was kept prisoner in Castle William. One of his wives, known as the begum, who resided at Lucknow, put herself at the head of a body of insurgents, coöperated vigorously with Nena Sahib, and is supposed to have escaped to Thibet. The province however was substantially subdued by the end of 1858, and in the spring and summer of 1859 the whole population was disarmed, 1,327 forts being destroyed and 1,367,406 arms of all kinds given up. On Oct. 22 the governor-general made a triumphal entry into Lucknow, and settled the difficulties of the land titles by giving the talookdars a free grant of their estates. (See Hindostan, vol. ix. pp. 190, 191.)—Oude, or Ayodha, a town of the preceding province and anciently its capital, is situated on the right bank of the Goggra, 75 m. E. from Lucknow; pop. about 8,000. It adjoins the modern town of Fyzabad, and is now almost deserted. Its principal buildings are the "fort of Hanuman," built in honor of the fabulous monkey god, the auxiliary of Rama, and having an annual revenue of 50,000 rupees settled on it by Sujah-ud-Dowlah; and the ruined "fort of Rama," the mythical hero of the *Ramayana*. Oude is thought to be the most ancient city of India, and according to Buchanan was founded in 1366 B. C. The *Ayeen Akberry* describes it as 200 miles in length.

OUDINOT, Nicolas Charles, duke of Reggio, a French marshal, born in Bar-sur-Ornain, April 20, 1767, died in Paris, Sept. 13, 1847. He enlisted at the age of 17, but retired from the army at the desire of his father in 1787. In 1792 he was elected commander of the 3d battalion of the Meuse, attained the rank of colonel by his defense of the castle of Bitche, was made brigadier-general in 1794 for his bravery in the battle of Moorlautern, successfully conducted several operations under Moreau in the campaign of 1796 on the Danube, and became general of division in 1799. He contributed to the success of Masséna in the battle of Zürich, and took part in the siege of Genoa and the battles on the banks of the Mincio. In command of a picked corps of 10,000 grenadiers and voltigeurs, he shared in the campaign of 1805 against Austria, defeating the enemy at Wertingen, entering Vienna, crossing the Danube under a dreadful fire of artillery, and finally contributing to the victory of Austerlitz. His services were scarcely less important in the two following campaigns in Prussia and Poland (1806–'7), when he won the battle of Ostrolenka and fought under Napoleon at Friedland. He was rewarded with the title of count and a gift of 1,000,000 francs. In command of the vanguard of the French army in 1809, he distinguished himself so greatly at Pfaffenhofen, Ebersberg, Essling, and Wagram, that he was created marshal of the empire and duke of Reggio, with an income of 100,000 francs. In 1812 he led the 2d corps of the great army that invaded Russia, and so skilfully manœuvred to protect the crossing of the Beresina, that he was hailed as the "preserver of the army." In the campaign of 1813 he fought at Bautzen, was defeated by Bernadotte at Grossbeeren, and severely wounded at Leipsic. On the fall of the emperor he joined the Bourbons, and faithfully held to their cause during the Hundred Days. Under the 2d restoration he was appointed commander of the national guard of Paris, and in 1823 led the 1st corps of the French army in Spain. Louis Philippe made him chancellor of the legion of honor in 1839, and governor of the Hôtel des Invalides in 1842. A statue was erected in his honor by his native city. During his military career he received no fewer than 35 wounds.—Nicolas Charles Victor, duke of Reggio, son of the preceding, born in Bar-le-Duc, Nov. 3, 1791, commenced service under Napoleon, became a colonel in 1814, commanded the 1st regiment of horse grenadiers in the royal guard in 1822, and was afterward placed at the head of the school of cavalry at Saumur, but retired for a while on the revolution of 1830. Restored to his rank of brigadier-general in 1835, he went to Africa (where a younger brother had fallen at the head of his regiment), and participated in the expedition of Mascara, but a wound obliged him to return to France. He was then promoted to the rank of general of division. He was twice elected to the chamber of deputies. After the revolution of 1848 he held a seat in both the constituent and the legislative assemblies. He was appointed to command the French army sent against the Roman republic, landed at Civita Vecchia April 25, 1849, and took possession of Rome July 3. Returning to France, he reappeared in his seat in the legislative assembly, and opposed the policy of the president. On Dec. 2, 1851, he was one of the members of the assembly who met in the hall of the 10th district to protest against the coup d'état, and was arrested and for a few days held prisoner in the castle of Vincennes. Since then he has retired to private life. Several essays of his upon military matters have attracted attention. He was one of the founders of the *Spectateur militaire*, a periodical to which he is still an occasional contributor.

OUGHTRED, William, an English mathematician and divine, born in Eton, Buckinghamshire, in 1573, died Jan. 30, 1660. He was educated at Eton, and at King's college, Cambridge, where he invented while an undergraduate "an easy method of geometrical dialling." Having received holy orders, he was presented to the rectory of Aldbury, near Guildford, in 1603, and in 1628 was tutor to the son of the earl of Arundel. He was called the "prince of mathematicians," and left numerous works.

OUISTITI. See Marmoset.

OUNCE (*felis uncia*, Buffon; *leopardus uncia*, Gray), a medium-sized cat of the old world, smaller than the leopard, inhabiting the mountainous regions of Asia. Buffon distinguishes it from the panther by its smaller size (the length of the body being only 3½ feet), its longer and shaggy hair, and its tail nearly as long as the body. The ground color is whitish gray on the back and sides, without tint of fulvous, and whiter below; the body is marked by blackish spots, sometimes forming irregular circles, the limbs simply spotted, and the tail ringed. It is a very active animal and an expert climber, preying upon rodents and the smaller ruminants. Cuvier and others regard it as a variety of the panther, the last also being considered the same as the leopard. Hamilton Smith considers it distinct, and Gray describes it as a species in the catalogue of the British museum. Its size, markings, and habitat seem sufficient to entitle it to rank as a true species.

OUSLEY, Gideon, an Irish clergyman, born in Dunmore, Galway, in 1762, died May 14, 1839. He became a member of the Wesleyan church, and after laboring 20 years as a local preacher was appointed in 1799, missionary to the Irish. He entered upon his duties just at the close of the great rebellion, and from the excited state of the Catholic population was subjected to many trials, being frequently assaulted while preaching in the streets. He was regarded as the most efficient and successful Irish missionary ever employed by the Wesleyans, preaching often 5 times a day in English and Irish. He left various works on the Roman Catholic controversy, the best known of which is his "Old Christianity, against Papal Novelties."

OUSELY, Sir William, an English orientalist, born in Monmouthshire in 1771, died in 1842. In 1787 he went to Paris to study French, and the following year became cornet in a regiment of British dragoons stationed in Ireland. Devoting all his leisure to the oriental languages, he left the military service after the campaign of 1794, and went to the university of Leyden. In 1795 he published his "Persian Miscellanies." Afterward he went to London, received various complimentary distinctions from the universities and learned societies, and accompanied as private secretary his brother, Sir Gore Ousely, the ambassador to the Persian court. Among his works are: "Oriental Collections" (3 vols. 4to., 1797); "Observations on some Medals and Gems, bearing Inscriptions in the Pahlavi or Ancient Persian character" (4to., 1801); "An Abstract of the Persian Translation of the Geography written in Arabic by Ibn Haukal;" a descriptive catalogue of his collection of Persian, Arabic, and Turkish manuscripts, and "Anecdotes from Oriental Bibliography" (1827); and another catalogue of his oriental manuscripts in 1831. An account of his travels in Persia was published in 1819-'22 (3 vols. 4to.).

OUTAGAMIE, an E. co. of Wis., intersected by Neenah, Wolf, and Embarras rivers; area, 684 sq. m.; pop. in 1855, 2,716. Its surface is diversified and covered with great forests, which yield large quantities of lumber. It was separated from Brown co. in 1850, and is not included in the census of that year.

OUTLAWRY (law Latin *utlagaria*, *utlagatio*, from *utlagatus*, *exlex*; Saxon, *utlagh*, *utlaughe*), the process by which one is excluded from the protection of the law, partly in respect to his property, and partly in respect to his person. When a party defendant, after formal and proper summons, refuses to appear before a court of competent jurisdiction, his contumacy is in fact nothing else than rebellion against the organic law of the state; he sets at defiance the authority of the society of which he is a member, and, whether his conduct be construed as an admission of guilt, or more properly as a mere contempt, he certainly cannot complain if those who are intrusted with the maintenance of the social order and welfare declare that he has forfeited the benefits and privileges of the law to which he refuses to submit. The outlaw, says Bracton, forfeits home and country, and becomes an exile. Anciently he was known by another name, to wit, *frendlesman*, as it seems, because he forfeited his friends; for if any of them rendered him any assistance, they suffered the same punishment as the outlaw himself, losing like him both their goods and their life, unless the king of his grace spared them. From the time one was outlawed he was said anciently to bear a wolf's head (*caput lupinum gerere*); and it is usually stated, as if on the authority of Bracton, that an outlaw might be killed with the same impunity as a wolf. But this author says plainly, that one might take the outlaw's life only when he resisted being taken, or endeavored to escape. After his capture, his death or life rested in the hands of the king alone. All males above the age of 12 years might suffer outlawry, because at that age they were all sworn and enrolled in the decennary, and were thus within the law of the realm. Women were "waived," not outlawed, because they were not thus sworn. They therefore could not be excluded from the benefit of the law, but were abandoned or disregarded by it.—Outlawry was pronounced originally only in cases of treason or felony. Next it was extended to trespasses of a flagrant character. But properly it was limited to those processes in which a *capias* lay, that is, a writ or warrant to take the person of the defendant. In all actions of trespass *vi et armis* this *capias* lay at common law, and consequently also, in proper cases, outlawry. In actions of debt, detinue, covenant, and such others as are founded upon mere negligence or laches, *capias* did not lie at common law, and therefore outlawry was impossible, until it was introduced by act of parliament. A distinction was made, in respect to the consequences of outlawry, between criminal and civil cases. In the former, sentence of outlawry operated as a conviction of the offence itself with which the accused was charged. In treasons and felonies therefore he suffered corruption of blood, and forfeiture of all his estate, real as well as personal. In civil cases the ultimate object of the outlawry was to secure access to the defendant's property. His failure to appear was, accordingly, not accounted a confession of the matter charged; but as a contempt, it deserved and drew after it a forfeiture of personal property and loss of the profits of lands so long as the outlawry lasted. An outlaw will not be heard in the courts where he seeks to originate a legal right, and his adversary may plead the outlaw's disability in bar or in abatement of his suit. Indeed, he cannot appear in court for any other purpose than to reverse his outlawry. He cannot be a juror, for he is not an unimpeached citizen, *liber et legalis homo;* but if he was outlawed in a civil action, he may be an heir or a witness. In England, outlawry is declared after three successive writs of summons to the defendant, and after he has been called by the sheriff in five different courts. The judgment of outlawry may be reversed by writ of error or upon motion in the courts, and after reversal the party may be put to plead to the original process.—The process of outlawry is rare in the United States. In some states it has never been known. In Pennsylvania it is retained in treason, robbery, burglary, and sodomy; in New York, in treason alone. In both these states outlawry in civil actions has been expressly abolished, and it may be said to have no actual existence in any.

OUTRAM, Sir James, a British soldier, born at Butterley Hall, Derbyshire, Jan. 29, 1803. He is the son of Benjamin Outram, an eminent civil engineer, was educated in Scotland, of which country his mother was a native, and after studying with distinction at Marischal college, Aberdeen, went out to Bombay in 1819, as a cadet in the military service of the East India company. He was posted to the 23d regiment of Bombay native infantry, of which he soon became adjutant, and, having distinguished himself by a brilliant and successful attack upon an insurgent stronghold in Candeish, was selected by the governor, Mountstuart Elphinstone, to undertake a mission to the ferocious Bheel tribes. His first exploit was to beat them in battle; his next to organize them into an irregular military corps, hoping that these indomitable marauders might be civilized by turning their warlike spirit to some legitimate purpose. The result of a short trial fully justified his anticipations, and peace being restored to the Bheel country he was sent into Guzerat to subdue the rebel chiefs of the Ky- Caunta. This he effected by similar measures, defeating them first and conciliating them afterward. When the war with Afghanistan broke out, he volunteered his services, and was appointed honorary aide-de-camp to Sir John Keane, rendering valuable assistance throughout the campaign. He played a conspicuous part in the capture of the Beloochee stronghold of Kelat (1840), and, disguised as a native devotee, carried the news of its fall a week's journey through the enemy's country to Kurrachee, where he took ship for Bombay. For his services on this occasion he received the brevet rank of major, and was appointed political agent in Lower Sinde, where he not only upheld the British arms, but gained the affection of the native chiefs. When Sir Charles Napier undertook the conquest of Sinde, Outram was resident at Hyderabad, and endeavored to avert a collision between the ameers and the British. The princes treated him courteously, but the soldiers growing furious and attacking the residency, he defended himself with a small escort, and finally effected an orderly though dangerous retreat. He condemned the whole war "a most tyrannical, positive robbery," and was consequently involved in an acrimonious controversy with Sir Charles Napier. After a short visit to England, he was employed against the rebels in the South Mahratta country, organized a light irregular force, and, to use the words of Sir Henry Lawrence, "his very advanced guard drove before them the half-armed rabble that had kept three brigades at bay." In 1845 Outram (now a colonel) was appointed resident at Sattara, and in 1847 resident at Baroda. In the latter station his zeal for the suppression of certain corrupt practices, in which his language was not always moderate or prudent, brought him into disfavor with the Bombay government, and returning to England he plunged into a paper warfare by which he secured from the first the sympathy of the public, and finally the approval of the court of directors. In 1854 he was appointed political resident at Lucknow, and after the annexation of Oude in the early part of 1856 again sailed for Europe, was made civil knight commander of the bath, and on the outbreak of the Persian war was appointed commander-in-chief of the British forces in Persia, with the temporary rank of lieutenant-general, his actual rank at this time being that of major-general. Reaching Bushire, where the first division was already encamped, about the end of Jan. 1857, he defeated the Persians at Borasjoon, Feb. 5, and Koosh-aub, Feb. 8, and took Mohammerah, March 26, soon after which news arrived that peace had been signed between England and Persia. Returning to India, which was then in the midst of the sepoy rebellion, Outram was appointed to the military command of the Cawnpore and Dinapoor divisions. His first effort was to relieve Gen. Havelock at Cawnpore, and this effected (Sept. 15) to march with him to Lucknow; but in consideration of Havelock's previous exertions to assist the garrison at the latter place, he chivalrously refused to take from him the command of the relieving force, and accompanied it as a volunteer. Entering Lucknow Sept. 25, he conducted the defence of the residency until the rescue by Sir Colin Campbell, Nov. 19, when he occupied a fort called the Alumbagh, about 4 m. from the city, and during the next few months several times defeated the rebels with great slaughter. He coöperated with Campbell in the final siege and capture of Lucknow in March, and in the capacity of chief civil commissioner immediately applied himself to restore order in the province. He was soon summoned to Calcutta as a member of the supreme council. In the summer of 1860, his health being much broken, he returned home, and retired to private life. In 1857 he received the military decoration of the grand cross of the bath for his services in Persia, was created a baronet of the United Kingdom in 1858, became lieutenant-general in the same year, and in Dec. 1860 was presented by the corporation of London with the freedom of the city and a sword.

OUZEL, a genus of birds of the thrush family, *hydrobata* (Vieill.) or *cinclus* (Bechst.). The bill is without bristles at the base, moderate, slender, slightly bent upward, with culmen nearly straight, and curved and notched tip; the frontal plumes come as far as the opening of the nostrils; wings moderate and rounded, the 1st quill spurious and the 2d rather shorter than the 3d and 4th, which are longest; tail very short and nearly even; tarsi as long as middle toe, covered in front with an entire scale; feet robust, with toes moderate, the outer the longest, and united at base; claws long, curved, and sharp. About half a dozen species are described in America, Europe, and Asia. The American water ouzel or dipper (*H. Mexicana*, Baird; *C. Americanus*, Swains.) is about 7½ inches long, with an extent of wings of 10½; the color above is dark plumbeous, paler beneath; head and neck with a sooty brown tinge; a concealed white spot above the front of the eye, and sometimes below it; in young birds the feathers beneath, the wing coverts, and lesser quills are edged with grayish white; it inhabits the vicinity of clear rapid streams in the Rocky mountains from British America to Mexico. The European ouzel or dipper (*H. cinclus*, Vieill.; *C. aquaticus*, Bechst.) is of about the same size, with the head and hind neck dark brown, the upper parts dark gray with broad black edgings, throat and fore neck white, and breast brownish red; the female with less deep tints; the young grayish above, with black edgings. A similar species (*H. Asiatica*, Swains.) is found in northern Asia.—The form of the ouzels is compact, and the motions and attitudes are like those of the wrens. Their habits are very peculiar, and have been accurately described by Macgillivray in Great Britain from actual observation; they are found singly or in pairs in mountainous districts on the borders of streams; they seek their food under water, not plunging superficially like the kingfisher or the fish hawk, nor going under from the surface like the ducks, but darting boldly into the water from the wing, diving to the bottom, and swimming and running about there with great rapidity, in search of aquatic insects, larvæ, and mollusks, on which they feed. The ouzel is said also to devour the spawn and fry of fishes, and on this account, though probably without reason, is very generally persecuted by anglers and gamekeepers; its progression under water is by the action of the wings, as in many web-footed birds; it remains submerged for a minute or two, swimming well, rising buoyantly to the surface, and able to dive again without rising on the wing. The flight is direct and rapid; it is in the habit of perching on stones in the middle of streams, constantly moving the tail up and down; it is a very poor walker; when wounded, it plunges under water and escapes to the shore, struggling to the last when taken. The note is a gentle warble, short and lively, but not resembling the full song of the proper thrushes. It begins to make a nest about the middle of spring, of moss and leaves, on the bank of a stream, among the roots of a tree overhanging the water, in the crevice of a rock, or in a hole in a bridge, dam, or wall; it is of large size, arched over, and compactly built; the eggs are 5 or 6, pure white, somewhat smaller than those of the song thrush. This genus is considered intermediate between the ant-thrushes and thrushes proper; its short and dense plumage, short wings and tail, and bill, are admirably adapted for making its way under water, and seizing and detaching its food from submerged stones. According to Macgillivray, the genus forms a connecting link between the slender-billed land birds and the diving water birds, as the kingfisher seems to unite the former with the plunging birds of the same order.—The name of ring ouzel is given to the European thrush (*turdus torquatus*, Linn.) from its having a broad white crescent across the black of the breast; and the blackbird (*T. merula*, Linn.) is often also called ouzel in Great Britain.

OVEN BIRD, the popular name given to a group of tenuirostral birds of the sub-family *furnarinæ* and the family of creepers, inhabiting the warm parts of South America and the West Indies. In the typical genus *furnarius* (Vieill.) the bill is moderate, slender, and slightly curved; wings and tail moderate, and tarsi long. The red oven bird (*F. rufus*, Vieill.), called *hornero* in La Plata, is about 6 inches long, reddish above and white below; it is seen generally in pairs, both in bushy and open places and near human habitations, running rapidly or making short flights from bush to bush in search of insects, especially *coleoptera;* it will also eat seeds; the note is loud and shrill. The nest is placed in an exposed situation on a tree, paling, window sill, or even in the interior of a house; both sexes work at it, alternately bringing a lump of clay, or piece of straw and twig, which they fashion into a dome-shaped structure like a baker's oven, 6 or 8 inches in diameter and with walls about an inch thick; the opening is on the side, and near it is a partition reaching nearly to the roof, behind which is an inner chamber in which the eggs, 4 or 5, are deposited on feathers and soft grass. The genus *cinclodes* (Gray) frequents the sea beach, and may often be seen walking on the masses of floating sea weed near the shore; some occasionally wander inland, and even to the height of 8,000 feet on the Cordilleras; their food consists of insects, small crustaceans and mollusks, and seeds. Other genera are *lochmias* (Swains.), of Brazil; *enicornis* (Gray), in dry regions of Patagonia and the barren Cordilleras; *limnornis* (Gould), on the reedy borders of South American lakes, climbing vertically along the stems; *geositta* (Swains.), on the open sandy plains; and *cinclocerthia* (Gray), of the West Indies. The prevailing colors are red and brown, varied with black and white.

OVERBECK, **Friedrich**, a German painter, born in Lübeck, July 3, 1789. He commenced his artistic education in Vienna in 1806, and in 1810 repaired to Rome, where he was thrown into the society of a number of young compatriots, who had become convinced that a return to the truth and simplicity of the early Italian masters could alone effect a healthful regeneration of art. Overbeck, who was of a devout and impressible nature, soon became the soul of the movement, and, aided by Cornelius, Veit, Schadow, Pforr, Schnorr, and others, as well as by the hints afforded by Schlegel and other sympathizers, he laid the foundation of a new and remarkable school of painting. A Madonna painted in 1811 first brought him into notice in Rome, and he soon proved his claim to be considered the head of his school by the frescoes of "Joseph sold into Captivity by his Brethren" and the "Seven Years of Famine," painted in the villa of the Prussian consul, M. Bartholdy, in which the young German artists executed their first important works. Overbeck now gradually restricted himself to works of an exclusively devotional character, which he strove to imbue with the religio-mystic feeling of an earlier epoch in art. In like manner he adopted the theological views of his artistic prototypes, and in 1814, in company with several of his associates, abjured Lutheranism and embraced the Roman Catholic faith. His life has since been passed almost entirely in Rome in the practice of his art. At first he was surrounded by a band of enthusiastic disciples, but by degrees his followers either died, or were enticed by the more vigorous and romantic style into which the new German school expanded, to renounce the limited range of subjects and the severe, almost ascetic, style of their master. Their places have not been readily supplied, and Overbeck now labors in his vocation almost alone, but with not less enthusiasm than when he commenced his career in Rome 50 years ago. Of his works in fresco, the revival of which his example greatly aided, the most remarkable are a series of 5 representing subjects from Tasso's *Gerusalemme liberata*, executed in 1817 in the villa Massimi in Rome, and the "Vision of St. Francis" painted for the church of the Madonna degli Angeli near Assisi, the latter of which is considered a remarkable exposition of the principles of Christian art as understood by him. The picture which first gave him a European reputation was the "Entry of Christ into Jerusalem," completed in 1824 for the Marienkirche in Lübeck, and which is well known by engravings. Other works by him of a scriptural character are "Christ bearing the Cross," "The Child Christ in the Temple," "Christ blessing Little Children" (also well known through the engravings), "The Raising of Lazarus," "Christ raising the Daughter of Jairus," "Christ on the Mount of Olives," "St. John preaching in the Wilderness," "Moses and the Daughter of Jethro at the Well," "Gathering the Manna," "Hagar in the Desert," and the "Ascent of Elijah." His numerous "Holy Families" and *Pietas*, "Marriage of the Virgin," "Virgin with the Lily," "Three Kings," "St. Elizabeth," "Assumption of the Virgin," &c., are examples of his manner of illustrating the traditions of the church. His masterpiece perhaps is the elaborate composition in the Städelsche institute at Frankfort-on-the-Main, representing the triumph of Christianity in the arts, of which the upper compartment is occupied by Christ in the act of blessing, the Virgin, and a crowd of prophets, saints, and apostles, while below are the representatives of music, architecture, sculpture, painting, &c., the heads in most cases being portraits. As a designer in charcoal and chalk, he is perhaps more generally known than by his paintings; and engravings of his "Passion of our Lord," "Forty Illustrations from the Gospels," and similar series of drawings have been executed by Ruscheweyh, Schäfer, Amsler, Keller, [illegible] and other German artists. He has also designed a remarkable series of cartoons to be executed in fresco in the chapel of the banker Torlonia's villa at Castel-Gandolfo. Occasionally he has attempted allegorical figures, such as his "Germania" and "Italia."

OVERBURY, **Sir Thomas**, an English courtier and author, born at Compton-Scorpion, Warwickshire, in 1581, died in the tower of London, Sept. 15, 1613. He was graduated at Oxford in 1598, and entered of the Middle Temple, but he soon forsook the law to travel on the continent. In 1601 he went to Edinburgh, where he formed an acquaintance with Robert Carr, a sewer or page in the service of the earl of Dunbar. Carr was illiterate, but handsome and amorous. Overbury added to the refinement of gentle breeding the accomplishments of a good education. He became Carr's intimate friend and adviser, wrote his ove letters, and held all his secrets; and when Carr removed to London and became the chief favorite of James I., Overbury shared his good fortune, and in 1608 was knighted. In 1609 he visited France and the Netherlands, and wrote a volume of "Observations upon the State of the Seventeen Provinces" (1626). Vain, arrogant, and presuming, he was expelled from court for an insult to the queen; but his patron, who had been created Viscount Rochester, procured his recall. Rochester was now engaged in an intrigue with the ady Frances Howard, daughter of the lord chamberlain Suffolk and wife of the earl of Essex. Overbury assisted him with his pen to win the love of the profligate countess; but when it was proposed, with the approbation of the king and the lady's father and uncle, to procure a divorce and marry her to Rochester, he interposed objections, denounced the lady as a strumpet, wrote his poem of "The Wife" to dissuade his patron from the project, and declared that he could and would throw an insuperable obstacle in the way of their union. The countess in her rage offered £1,000 to Sir David Wood to take Overbury's life in a duel; but her uncle Northampton, who was jealous of his influence, proposed a safer plan to get him out of the way, and caused a foreign embassy to be offered him, which Rochester persuaded him to refuse. His refusal was declared a contempt of the king's commands, and on April 21, 1613, he was committed to the tower. Here he was confined in one of the closest dungeons and debarred from all communication with his friends. The lieutenant-governor was removed to make place for Sir ervis Elwes, a creature of Suffolk's, and a man named Weston was employed by the countess to be the prisoner's sole attendant. In 5 months Overbury died after great sufferng, and with every indication of having been lowly poisoned. The murderers were successful for a time in defying public suspicion. The divorce was obtained, and Rochester, now raised o the dignity of earl of Somerset, was married o the countess. But two years later, when Villiers had become the royal favorite, Winwood the secretary laid before the king some evidence which had been collected by Trumbull, the British ambassador in the Netherlands, and Somerset and his wife were arrested. James committed the investigation to Sir Edward Coke. The minor conspirators, Weston, Elwes, Franklin, an apothecary who furnished he poison, and a woman named Turner, were onvicted and executed. The countess, on being placed at the bar of the house of lords May 24, 1616), pleaded guilty, and received judgment of death; and her husband after a long trial was sentenced to the same penalty; but both were pardoned a few days afterward. Somerset refused to accept less than a reversal of judgment, but in 1624 he petitioned for what he had refused, and received also a pension of £4,000. The fate of Overbury has never been satisfactorily explained. James is not free from a suspicion of complicity in his death, but what motive he could have for wishing it can only be a matter of the wildest conjecture.—Overbury wrote, beside the works already mentioned, a series of "Characters" and "Newes from any whence, or Old Truths under a Supposal of Novelty" (1614); "The First and Second Part of the Remedy of Love" (1620), a paraphrase from Ovid; and "Crumms fallen from King James's Table, or his Table Talk" (1715). His style is somewhat overstrained, but he displays wit, ingenuity, and great knowledge of the world and of character. There is a complete edition of his works, with a life by E. F. Rimbault, in Mr. Russell Smith's "Library of Old Authors" (London, 1856).

OVERSTONE, Samuel Jones Loyd, baron, a British financier, son of the banker Lewis Loyd, born in London, Sept. 25, 1796. He was educated at Eton, and at Trinity college, Cambridge, and in 1819 entered parliament as member for Hythe, retaining his seat until 1826. About the same time he became a partner in the paternal banking house of Jones, Loyd, and co., which his commercial sagacity and intimate knowledge of business caused to rank among the first in Great Britain. Such was his reputation as a financier that he was on various occasions consulted by the government on measures connected with the commerce of the country; and it has been understood that some of the most important portions of Sir Robert Peel's bank charter act were suggested by him. In 1850 he was elevated to the peerage as Baron Overstone and Fotheringay of Northamptonshire. He has long been considered a leading authority on banking and commercial matters, and both in his legislative capacity and through the columns of the press has given publicity to his views. A collection of his papers has recently been published in 2 vols. for private circulation.

OVERTON, a N. co. of Tenn., bordering on Ky., drained by Obie's or Obed's river, a branch of the Cumberland, navigable by steamboats for 60 m. in the county; area, 580 sq. m.; pop. in 1850, 11,211, of whom 1,065 were slaves. The surface in some parts is mountainous, and the soil generally fertile. The productions in 1850 were 622,485 bushels of Indian corn, 63,824 of oats, 36,791 of sweet potatoes, 63,752 of tobacco, and 104,885 of butter. There were 15 grist mills, 2 saw mills, 3 tanneries, 23 churches, and 1,723 pupils attending public schools. Capital, Livingston.

OVERTURE (It. *overtura*; Fr. *ouverture*), a species of introductory symphony prefixed to an opera or oratorio, of which it is intended to present an epitome or characteristic sketch. Its invention is ascribed to the French composer Lully, and in the oldest overtures the fugue, preceded by a slow movement in $\frac{4}{4}$ time and closing in the dominant, was the prominent feature. In this style were written the overtures of Handel and many of his contemporaries. The overtures of modern composers frequently contain snatches of the leading airs of the opera. Such compositions are sometimes called programme overtures. Overtures are occasionally written on the themes afforded by poetical or dramatic works, as Beethoven's overture to Goethe's "Egmont."

OVERWEG, Adolf, a German geologist and explorer, born in Hamburg, July 24, 1822, died Sept. 27, 1852, in Maduari, central Africa, whither he had accompanied the expedition of Richardson and Barth. (See Barth, Heinrich.)

OVERYSSEL, or Overijssel, a province of the Netherlands, bounded N. by Friesland and Drenthe, E. by Hanover and Westphalia, S. and S. W. by Gelderland, and W. by the Zuyder Zee; area, 1,282 sq. m.; pop. in 1860, 234,488. The surface is generally low, but diversified by a few small hills locally called mountains, and in the E. part the soil is principally marshy. Large peat moors are found here, and in other places there are sandy heaths. The best land is near the Yssel, which enters the province from Gelderland, forming part of the boundary between the two provinces. The other chief rivers are the Vechte, Schiepbeek, Zwarte-water, and Linde. The Zwarte-water and Yssel are united by a canal. The province contains several small lakes. The principal productions are rye, buckwheat, hemp, fruits, cattle, and peat; and the most important manufactures are linen and cotton goods, wicker ware, mats, and iron. The pasture lands are particularly rich, and cattle breeding and peat digging are the most important branches of industry. Considerable attention is also given to the fisheries and to bee keeping. The climate is moist and unhealthy. Zwolle, the capital, Deventer, and Kampen are the chief towns.

OVID (Publius Ovidius Naso), a Roman poet, born in Sulmo in the country of the Peligni, March 20, 43 B. C., died in Tomi on the Euxine S. of the mouth of the Danube, A. D. 18. He was of an ancient equestrian family, and was educated for the bar; but his taste for poetry interfered so seriously with his professional studies, that the elder Seneca, who had seen one of his rhetorical exercises, describes it as *solutum carmen* rather than an argumentative discourse. His father, believing that poverty was the lot of poets, endeavored in vain to wean him from these tastes, but subsequently allowed Ovid to follow the bent of his inclinations. He accordingly finished his education in Athens, and after travelling in Asia and Sicily returned to Rome, where, though it is doubtful if he ever practised the law, he discharged the functions of judge in several of the minor courts, and was finally promoted to be one of the *decemviri*, who presided over the court of the *centumviri*. The poets Macer, Propertius, Ponticus, and Bassus were among his intimate friends, and he had frequent opportunities of hearing Horace recite his compositions. Virgil he saw but once, and Tibullus he knew, but not intimately. He was thrice married, his first wife being quickly put aside for unfaithfulness, and his second because she was irksome to the poet, who was then enamored of a mistress celebrated by him under the name of Corinna. According to Sidonius Apollinaris, this was Julia, the profligate daughter of the emperor Augustus. She was undoubtedly a married woman of high rank, and may be said to have incited Ovid to his first successful attempts at elegiac poetry, the series called the *Amores*, subsequently published by him in a second edition under the title of *Amorum Libri III.*, being the result of his intimacy with Corinna. At about the age of 30 he married his 3d wife, with whom he appears to have lived happily, and by whom he had one child, a daughter. His amours thenceforth, if not entirely discontinued, were conducted with some regard for propriety; and the friendship of Atticus and other eminent men, the regard and favor of the imperial family, and his poetical reputation, greatly enhanced by the production of his *Epistolæ Heroidum*, his *Ars Amatoria* or *De Arte Amandi* and *Remedia Amoris*, his tragedy of *Medea*, now lost, and other pieces, rendered this portion of his life easy and agreeable. This tranquil existence was suddenly interrupted in A. D. 8 by an imperial edict commanding the poet to transport himself at once to Tomi, a town on the Euxine in the country of the Getæ, and on the very confines of the empire. No reason for this banishment, which was for life, though without the loss of citizenship or property, was assigned, beyond his having published his poem on the art of love; but it has been justly supposed that so severe a punishment would not have been inflicted for an offence of this nature, committed 10 years previous, unless it had been accompanied by another of greater heinousness. The publication of the *Ars Amatoria* is consequently regarded as a mere pretext on the part of Augustus, the motive for whose displeasure has long exercised the ingenuity of scholars. The poet himself hints at some "error," which however he never mentions, as the real cause of his punishment. His alleged intrigue with the emperor's daughter Julia has been presumed to be the "error" in question; but the fact that she was exiled more than 10 years before Ovid is a sufficient refutation of this opinion. Others have maintained that it was the younger Julia with whom he had an amour, and notwithstanding the disparity in their years, the coincidence of his banishment with hers gives ground for the idea. In the latter part of December Ovid left Rome for ever, and after a journey of nearly a year reached the inhospitable spot to which he was banished. The people among whom his lot was cast were scarcely less rude than their climate. The constant alarms excited by the incursions of barbarian hordes, the anxiety for his health and safety, and the absence of friends and family, rendered his existence wretched in the extreme; and he never ceased to offer affecting but unavailing supplications for the imperial clemency. The pursuit of literature afforded the chief alleviation to his misfortunes; and, beside applying the finishing touches to his *Fasti*, he wrote during his exile the *Tristia*, a record chiefly of his sufferings and appeals for pardon; the letters to his wife and friends *Ex Ponto*, very similar in style and substance to the *Tristia;* the *Ibis*, a satire; and some other pieces not sufficiently substantiated at the present day. His modest bearing and affable manners won upon the simple inhabitants of Tomi, among whom he rendered himself exceedingly popular by publicly reciting some poems composed in the Getic language, which he had succeeded in mastering. He died in the 10th year of his exile, worn out by grief, anxiety, and the rigor of the climate. The poems above mentioned, with the exception of *Medea*, are composed in elegiac metre, which Ovid wrote with more facility and elegance than any of his contemporaries. The *Fasti*, a sort of poetical Roman calendar with its appropriate festivals and mythology, of which the last 6 books are lost, is considered the best of them, and in melody of rhythm, epigrammatic brevity and point, and skilful antithesis, is a model of technical excellence. His chief work however, both in bulk and pretensions, was his *Metamorphoses*, in 15 books, composed previous to his exile, and burned by him during the hurry of his departure from Rome, but of which copies had been previously taken by his friends. It is written in heroic verse, and never received the final corrections of its author; but in spite of frequent prolixity, and an over indulgence in trite images and trifling conceits, the result of a remarkable facility of composition, it is impossible to resist he charm of the narrative, which, as the title denotes, includes such legends of mythology as nvolved a transformation, or to overlook the poetic beauties scattered with a lavish hand hroughout the work. His poems written in exile, though not less skilfully versified, are far nferior in poetic merit. Schiller characterizes hem as the offspring of necessity rather than of inspiration, but Gibbon has well pointed out heir value as illustrations of the human mind under singular and affecting circumstances. The lost tragedy, *Medea*, of which but two lines emain, was, according to the testimony of antiuity, the poet's masterpiece.—Of the numerous complete editions of Ovid, the more remarkable are the *editio princeps* by Balthazar Azoguidi (2 fols. fol., Bologna, 1471), the Aldine edition (3 vols. 8vo., Venice, 1502), the Elzevir edition by Heinsius (3 vols. 12mo., Leyden, 1629), the Delphin edition (4 vols. 4to., Lyons, 1689), Burmann's edition, esteemed the best (4 vols. 4to., Amsterdam, 1727), and Burmann's text with Bentley's MS. emendations (5 vols. 8vo., Oxford, 1825). There are also a number of editions of separate pieces. Of translations of his works nearly every European language possesses an abundance. The most esteemed metrical version of the *Metamorphoses* in English is that "translated by the most eminent hands," including Dryden, Addison, Congreve, Rowe, Gay, Ambrose Phillips, and others (fol., London, 1717), of which many editions have appeared. The version of George Sandys (fol., London, 1626), translated on the banks of James river in Virginia, deserves mention as the first work of any note composed in America. The *Ars Amatoria* and *Heroides* have in like manner been versified by several of the preceding translators, and Marlowe and others have also tried their hands upon them. Sir Thomas Overbury paraphrased the *Remedia Amoris*, and a translation of the *Fasti* by J. Gower was published at Cambridge in 1640. A literal prose translation of all the poems, by H. T. Riley, forms 3 vols. of Bohn's "Classical Library."

OVIEDO, a N. province of Spain, nearly identical with the ancient principality of Asturias, bounded N. by the bay of Biscay, E. by the province of Santander, S. by Leon, and W. by Lugo; extreme length 147 m., breadth 58 m.; area, 3,674 sq. m.; pop. in 1851, 555,215. (See ASTURIAS.)—OVIEDO, the capital of the province, is situated upon rising ground near the N. bank of the river Nalon, about 20 m. S. S. W. from the small port of Gijon on the bay of Biscay, and 245 m. N. N. W. from Madrid; pop. in 1850, 10,500. It is a fine town, and has an admirable Gothic cathedral built in the 14th century, and a university with a library of 12,000 volumes. There are 11 public fountains supplied with water brought into the town by an aqueduct supported upon 41 arches. Oviedo is the see of a bishop. It was pillaged by Ney's troops in 1809, and afterward by those of Bonnet.

OVIEDO Y VALDES, GONZALO FERNANDEZ DE, a Spanish chronicler, born in Madrid in 1478, died in Valladolid in 1557. He was of noble descent, spent several years of his boyhood at court, and was present in the closing campaigns of the Moorish war. In 1514 he was sent to San Domingo as supervisor of gold smeltings, and passed there almost the whole of his subsequent life, holding various offices and occasionally revisiting Spain. Having been appointed historiographer of the Indies, with authority to demand from the Spanish American governors whatever documents he needed, he composed a "Natural and General History of the Indies," in 50 books, 21 of which were published in Seville in 1535, and a complete edition is now in progress at Madrid. This work was denounced by Las Casas as little better than fabulous; but Las Casas was a bitter enemy of the author, whom he accused of rapacity and cruelty in his government. In his 79th year Oviedo finished his valuable work entitled *Las quinquagenas*, in which he gives under the form of dialogues a full, gossipping, and anecdotical account of all the principal persons of Spain of his time. It is still in MS. in the royal library at Madrid. He also wrote chronicles of Ferdinand and Isabella and Charles V.; and a life of Cardinal Ximenes is attributed to him.

OWEGO, a township and the capital of Tioga co., N. Y., on the Susquehanna river at the mouth of Owego creek; pop. of the township in 1855, 8,328; of the village, 3,041. It is the centre of a rich and extensive agricultural and lumber district, and has an active and increasing trade. It contains manufactories of steam engines, boilers, and machinery, and flour, plaster, and woollen mills, the Owego academy, a female seminary, 2 banks, 2 newspaper offices, and 13 churches, viz.: 1 Baptist, 1 Congregational, 1 Episcopal, 5 Methodist, 2 Presbyterian, 1 Roman Catholic, 1 union, and 1 Wesleyan Methodist. The Susquehanna is here crossed by a bridge 240 feet long. It is on the line of the New York and Erie railroad, and is connected with Ithaca by the Cayuga and Susquehanna railroad.

OWEN. I. A N. co. of Ky., bounded W. by the Kentucky river, and N. by Eagle creek; area, about 300 sq. m.; pop. in 1850, 10,444, of whom 1,514 were slaves. It has an undulating surface and a fertile soil. The productions in 1850 were 632,870 bushels of Indian corn, 22,794 of wheat, 46,680 of oats, 28,373 lbs. of wool, and 746,871 of tobacco. There were 12 grist mills, 9 saw mills, 1 tannery, 20 churches, and 485 pupils attending public schools. Capital, Owenton. II. A S. W. co. of Ind., drained by the West fork of White river and several smaller streams; area, about 400 sq. m.; pop. in 1860, 14,308. Its soil is fertile, especially near the borders of the streams. It contains extensive and very rich mines of coal and iron ore. The productions in 1850 were 764,029 bushels of Indian corn, 60,327 of wheat, 58,789 of oats, 2,176 tons of hay, and 39,531 lbs. of wool. There were 29 grist mills, 9 saw mills, 20 churches, and 1,158 pupils attending public schools. Capital, Spencer.

OWEN, JOHN, a British writer of Latin epigrams, born in Armon, Caernarvonshire, about 1560, died in 1622. He is called in Latin Ovenus, or Audoënus. He received a fellowship at New college, Oxford, in 1584, and took the degree of LL.B. in 1590. In the following year he resigned his fellowship, and taught school. Among continental scholars of his time he was called the "British Martial," such was the happiness, point, and linguistic purity of the Latin epigrams by which he became distinguished. He was a Protestant, and sometimes employed his wit against the Roman Catholic church, which caused his disinheritance at the hands of a rich uncle, and gave the collection of his epigrams in 1654 a place in the *Index Expurgatorius*. The best edition of them is that by Renouard (Paris, 1794). Translations into English were made by Vicars, Packe, and Harvey, that by the last named author being the most complete.

OWEN, JOHN, an English preacher and scholar, born in Stadham, Oxfordshire, in 1616, died in London, Aug. 24, 1683. He was descended from a prominent family in North Wales. His precocious genius and his thirst for knowledge were so marked, that at the age of 12 he was entered at Queen's college, Oxford, receiving his bachelor's degree at 16, and his master's degree at 19. In the university he became noted not only for his diligence in study and mastery of the ancient tongues, but also for skill and vigor in athletic sports. The lead which he took in resisting Archbishop Laud's new academical regulations brought upon him the ill will of the high church party, and alienated the uncle to whose generosity his advancement thus far had been in some measure due. He was compelled to leave his place at Oxford, to accept orders in the church, and to support himself by private teaching and by officiating as chaplain, first to Sir *Robert Dormer* of Ascot, and afterward to *Lord Lovelace*. In this period Owen's mind was greatly exercised by doubts concerning his religious state and his duty in the crisis in national affairs, which resulted finally in his open adhesion to the side of the parliament against the king, and his adoption of nonconformist principles. The type of faith which he chose was strict Calvinism, and his first work, the "Display of Arminianism" (1642), was hailed as the sign of reaction against that wide-spread heresy. In reward for this service to the orthodox cause, he received the living of Fordham in Essex, where he remained a year and a half, and gained great fame as a pulpit orator. This fame was increased when he removed to the larger neighboring town of Coggeshall; and the change which he here made from the Presbyterian to the Independent form of church government only made him more popular with the masses, and with the party rising in power. In April, 1646, he was first called to preach before the parliament, and his ability was so conspicuous that he was frequently summoned to preach to that assembly, and had the dangerous honor of addressing them on the day after the execution of Charles I. Cromwell favored him, took him as private chaplain on his expeditions to Ireland and Scotland, and, when he had received the office of dean in Christchurch college, made him in addition the vice-chancellor of the university. Though his administration came in a time of bitter theological contest, he gained the good will of all by his conciliating manners, and was able to subdue hatreds, to prevent outbreaks, and to accomplish important reforms. The 5 years in which he held this office were years of great literary and pastoral activity; he preached constantly and published several of his most important works, receiving moreover in 1653 the degree of D.D. The favor which he had enjoyed with Oliver Cromwell did not continue with the protector's son and successor. Presbyterian opposition deprived him of his vice-chancellorship, and at the restoration he was ejected from his deanery, and constrained to retire to his native town, where he purchased a small estate, and lived for a time in quiet. His passion for preaching nevertheless continued; and in spite of risks and prohibitions, and even attacks upon his house by the royalist soldiers, he persevered in addressing assemblies of his friends, and in expounding the principles of that Savoy confession which he had assisted in preparing. In a visit to London he became acquainted with Lord Clarendon, from whom he received tempting offers. In the period of toleration from 1667 to 1670, he took charge of an important congregation in Leadenhall street, London, to which his reputation and eloquence largely added, securing the favor of many of the nobility, and even for a time of the king and his Catholic brother. He had repeated interviews with Charles II. Though Owen's constitution was naturally robust, he had so strained it by excessive labor that it failed prematurely, and the last 12 years of his life were years of weakness and pain. His work on the "Glory of Christ" was hardly prepared for the press when its author finally yielded to his disease. He was buried at Bunhill fields, where his grave is still conspicuously marked. In personal appearance, Owen was tall, handsome, dignified, and courteous, and his royalist enemies all confessed the fascination of his manners. His strictness of opinion did not hinder him from being just and kind to opponents. He kept open house, aided poor students, and distributed favors to the Presbyterians, even when he denounced their principles. His learning was vast and accurate, not only in Christian divinity, but in rabbinical lore and in the classics. The reputation of his oratory is, it must be said, hardly justified by the style of his published writings, which, with all their wealth of thought and scholarship, are often dry, verbose, and tedious. Much of it, no doubt, was owing to his gifts of voice and manner. But even in the matter of style his writings will compare favorably with those of other Puritan divines. He had a reputation in other countries than his own, was at one time invited to a professorship in Holland, and was only prevented from emigrating to New England by an express order of the council. The familiar title applied to him by his Puritan brethren was the "prince of divines." Owen's works are very voluminous and on a great number of subjects. There were 7 volumes in folio, 20 in quarto, and 30 in octavo. The last edition was published in Edinburgh in 24 vols. 8vo. (1859).

OWEN, Richard, a British comparative anatomist and palæontologist, born in Lancaster in 1804. At a very early age he entered the naval service as a midshipman on board the frigate Tribune; but upon the conclusion of the general peace in 1815 he returned to his studies, and was for some years a pupil of Mr. Baxendale, a surgeon in Lancaster. In 1824 he attended medical lectures at the university of Edinburgh, and during a year's residence in that city acquired under the instructions of Dr. Barclay a predilection for the study of comparative anatomy. Repairing in 1825 to London, he became a student at St. Bartholomew's hospital, where his talents attracted the notice of Abernethy, then surgeon to the hospital, who employed him in the dissecting room as prosector. In 1826 he became a member of the royal college of surgeons, and from want of adequate professional employment procured the appointment of assistant surgeon in the navy. He was deterred from entering upon this career by the advice of Abernethy, who with characteristic roughness told him, if he went to sea, he would "go to the devil at once." Owen took the hint and remained on shore, and shortly after by the assistance of Abernethy was appointed assistant curator of the Hunterian museum, then deposited in the college of surgeons. This invaluable collection, the chief labor of Hunter's life, had so long been suffered to remain in obscurity, that at the time of Owen's appointment its existence was scarcely known to the public. Its preservation from injury or the effects of time or neglect was due to the efforts of Mr. Clift, for many years the assistant of the founder, and who had twice superintended its removal without the slightest damage to the frail and delicate preparations of which it in great part consisted. No attempt however had been made to render the museum of practical use to science by preparing a catalogue of its contents; and the destruction of Hunter's manuscripts and memoranda by his brother-in law, Sir Everard Home, seemed to render the task hopeless. Nevertheless Owen applied himself to it with unremitting industry, and in conjunction with Mr. Clift produced the catalogue of the pathological specimens in the museum (2 vols. 4to., 1830), and that of the monsters and malformations (4to., 1831), both comprising descriptions of the specimens, but not histories of the cases. Thenceforth Mr. Clift devoted himself chiefly to the care of the museum, leaving Owen to pursue his labors in cataloguing the rest of its contents alone. Between 1833 and 1840 the latter produced the elaborate "Descriptive and Illustrated Catalogue of the Physiological Series of Comparative Anatomy" (5 vols. 4to.), the amount of labor involved in which is well illustrated in his own statement contained in the 5th volume. "It is impossible," he says, "to reason correctly upon the structure of a detached organ, unless the condition of the rest of the organization, and the habits and mode of life of the species, be known; but to this end the name of the species from which the detached organ was derived is indispensable; without this fact the contemplation of the most elaborately dissected specimen can yield little satisfactory information, and to determine it became, therefore, the first and most essential step in the formation of the catalogue of the physiological specimens. This part of their history has, in most cases, been effected by a comparison of the Hunterian preparations with recent dissections." This brief statement, as has been well observed, "gives the key to the fund of monographs and other papers which Prof. Owen has been able to contribute to the transactions of the societies devoted to specific branches of natural history;" for, while dissecting the specimens necessary to identify those of Hunter, he was constantly opening new paths of inquiry and making discoveries, the results of which bear testimony to "an activity seldom equalled, perhaps never surpassed." The dissection of so many animals also enabled him to add many preparations supplying links in the Hunterian series; and the account of these contributions, as well as of those from other sources, must be added to the descriptions of the 3,790 Hunterian specimens in order to form an idea of the labor which mainly occupied the first 10 years of his scientific career. The materials and suggestions thus acquired, to the number of which each succeeding year largely added, have been employed chiefly to illustrate 4 great departments of natural science, viz.: comparative anatomy and physiology, zoology, palæontology, and transcendental anatomy and physiology. A brief recapitulation of his labors in each of these departments is all that can be attempted in this article. As an anatomist he has extended his labors over the 4 divisions of the animal kingdom, giving more attention to the vertebrates, and particularly to its chief division, the mammalia, than to either of the others. Among his papers on the mammalia, those devoted to the quadrumana, the carnivora, and the marsupialia are the fullest and most important. To the "Proceedings of the Zoological Society" he contributed papers "On the Anatomy of the Orang Outang," "On the Cranium of the Orang Outang," "On the Comparative Osteology of the Orang and Chimpanzee," &c.; and to the "Transactions" a series entitled "Osteological Contributions to the Natural History of the Chimpanzee," in which the skeleton of the gorilla of western Africa was first fully described. His researches among the carnivora have extended to the Thibet bear, the lion, the tiger, the seal, and many other animals, whose anatomy he has studied with especial reference to extinct forms of the same family. In this manner the sloths and armadillos have supplied him with hints as to the structure of the megatherium, the mylodon, and similar creatures of an earlier epoch. The marsupialia have formed a distinct and important study with him, and their position among the mammalia has been determined by observations extending through many years, the results of which are to be found in papers scattered through the "Philosophical Transactions," the "Transactions of the Zoological Society," and the "Reports" of the British association. He also published "Outlines of the Classification of Marsupialia." An account of his proposition for a fourfold division of the mammalia, based upon the 4 leading modifications of the cerebral system, will be found in the article MAMMALIA. His researches among the birds, reptiles, and fishes, both with respect to their classification and their connection with extinct species, have been not less remarkable; and in connection with this branch of his labors he has opened a rich field of inquiry among the extinct birds of New Zealand, resulting in the discovery of the gigantic genus dinornis, with many of its species, and several kindred genera. The "Transactions" above cited, and the "Cyclopædia of Anatomy and Physiology," contain abundant evidences of the attention he has given to the invertebrate animals, the mollusks and articulate animals having been examined with particular care. His "Memoir on the Pearly Nautilus," published in 1832, containing a description of its anatomy, and a proposal for a new classification of the family of cephalopodous mollusks, was followed by an important series of papers on the same subject. In the investigations above alluded to he made frequent use of the microscope, and was one of the founders and the first president of the microscopical society; and it is to his intelligent employment of this instrument that we are indebted for a series of observations on the structure of the teeth of animals, in accordance with which he in 1849 divided the mammalia into two classes, the monophyodonts, or those generating a single set of teeth, and the diphyodonts, which generate two sets. The most important results of these researches were embodied in his "Odontography" (2 vols. 8vo., London, 1840-'45), a work embracing within its scope the dental economy of the whole animal kingdom, and illustrated with numerous drawings of the microscopic appearance of the teeth of animals. It is, however, as a palæontologist that Mr. Owen is perhaps best known to the scientific world, and his researches in the little explored field of extinct animal life would alone suffice to stamp him as a profound naturalist. Employing his knowledge of the anatomy of living animals to determine the remains of those which no longer exist, he has constructed numerous extinct families of vertebrata, the existence of which had not previously been even surmised; and in instances where his previsions were founded on a footprint or the fragment of a bone, subsequent researches and discoveries have amply confirmed his opinions. His anatomical knowledge seems to delight to grapple with difficult subjects, and the science of palæontology exhibits no more remarkable results than his descriptions of the complicated structure of the cheirotherium or of various species of the great family of *dinornidæ*. His publications in this department of natural history comprise a "History of British Fossil

Mammals and Birds" (8vo., London, 1846), con- aining the description of nearly 150 species, a arge number of which were discovered by him- elf; a "Description of the Skeleton of an ex- extinct gigantic Sloth (*Mylodon Robustus*), with Observations on the Osteology, Natural Affini- ies, and Probable Habits of the Megatheroid Animals in General" (4to., 1842); a "His- ory of the British Fossil Reptiles" (4to., 1848– 55); beside reports on the saurian reptiles and numerous papers on the *reptilia* found n different geological formations of Great Britain, on the *dinornidæ*, and on various fam- lies of mammalia, published in the "Transac- ions" of the zoological society and in the "Proceedings" of the British association for he advancement of science and of the palæon- ographical society. Among the numerous skeletons he has put together are those of the mylodon and glyptodon, both of which were irst described by him. In the department of transcendental anatomy Mr. Owen was the irst to develop the idea of Oken, which had been looked upon with indifference or distrust by Cuvier and other naturalists, that the typi- cal form of the skeleton in the higher animals is the vertebra. His works "On the Arche- type and Homologies of the Vertebrate Skele- ton, with Tables of the Synonymes of the Ver- tebral Elements and Bones of the Head of Fishes, Reptiles, Birds, Mammals, and Man" (1848), and "On the Nature of Limbs" (8vo., 1849), are considered to have demonstrated the existence of a general plan in the structure of he skeleton of the vertebrata. On other sub- jects embraced within the labors of the phi- osophical or transcendental school of anato- mists he is considered a firstrate authority, his views being "that there is in the history of creation a progress from the general to the special; that the lower and more incomplete forms of animals were first created; and that the higher forms have been the last to appear on the surface of the earth." In 1836 Mr. Owen was appointed Hunterian professor at the royal college of surgeons, in the place of Sir Charles Bell, in which capacity he deliv- ered several courses of lectures, embracing the whole animal kingdom, and containing a *ré- sumé* of his previous labors on the structure and classification of animals. These were pub- ished under the title of "Lectures on Com- parative Anatomy" (2d edition, 1853). In 1856 he was appointed chief of the natural history department of the British museum, which po- ition he still holds, giving in connection with t annual courses of lectures on natural history. Not the least useful of his labors have been hose connected with the subject of the sani- ary condition of large towns, which his efforts have tended greatly to improve. He was one of the commissioners of inquiry into Smithfield market, and successfully urged its removal. He has received the royal and Copley medals, and various honors from seats of learning, and is a member of the chief scientific bodies of the world. He is also in the receipt of a pension, and has a residence in one of the royal houses in Bushy park. A list of his publications may be found in the *Bibliographia Zoologiæ et Geologiæ* of the Ray society, and extended notices of his labors are contained in the "Quarterly Review" for 1852–'3, in which it is justly said: "From the sponge to the man no form of animal life has escaped his researches, and he has thrown light on each subject."

OWEN. I. **Robert**, an English social reformer, born in Newtown, Montgomeryshire, in 1771, died there, Nov. 19, 1858. Although the son of poor parents, he received a respectable education. He entered upon commercial life, and when 14 years old procured a situation in London, where he so recommended himself by his talents for business, that at the age of 18 he became partner in a cotton mill, and subsequently removed to the Chorlton mills near Manchester. Prospering in this undertaking, he married in 1801 the daughter of David Dale, a Glasgow manufacturer, and afterward assumed the charge of a large cotton factory in New Lanark, Scotland, belonging to his father-in-law. Here he introduced a system of reform (see LANARK) which proved for a time highly successful. He then turned his attention to more extensive social evils, and published in 1812 "New Views of Society, or Essays upon the Formation of Human Character;" and subsequently a "Book of the New Moral World," in which he maintained a theory of modified communism, insisting on an absolute equality in all rights and duties, and the abolition of all superiority, even that of capital and intelligence. By the aid of his immense fortune he was enabled to distribute a large number of tracts developing his peculiar views, and soon had everywhere numerous and enthusiastic followers. But, attacked on all sides, and particularly by the religious press, he set out in 1823, after the death of his patron, the duke of Kent, for the United States, where he determined to found at his own cost a communist society; and with this view he bought from Rapp the settlement of New Harmony in Indiana, on the banks of the Wabash, embracing 30,000 acres of land and dwellings for 2,000 persons. The scheme, however, proved an utter failure, and in 1827 he returned to England, where experiments of a similar nature attended by a similar result were made at Orbiston in Lanarkshire, and at Tytherley in Hampshire. He succeeded no better in establishing a "labor exchange" in London, in connection with a bazaar and bank. In 1828 he went to Mexico on the invitation of the government to carry out his experiment there, but effected nothing. His ill success, however, neither weakened his confidence nor lessened his activity, and during the remainder of his life he constantly appeared before the public as a lecturer and journalist. His ideas are most clearly developed in his "Lectures on a New State of Society," "Essays on the Formation of Human Character," and "Outline of the Rational System," and especially in his principal work, "The Book of the New Moral World," in which he came forward as the founder of a system of religion and society according to reason. He and his followers, the so called Owenites, became in 1827 the soul of the labor leagues, out of which sprang the chartist movement. During his last years he was a believer in spiritualism, and published several conversations held with Benjamin Franklin and other persons. He was one of the first, if not the first to found infant schools, and through him they were introduced into England. II. Robert Dale, an American author and politician, eldest son of the preceding, born in New Lanark in 1804. He accompanied his father to America, and there remained. Embracing the political views of the democratic party, he was a representative in congress from Indiana from 1843 to 1847, and was sent in 1853 to Naples by President Pierce as chargé d'affaires, which station he held until 1858. He took a prominent part in the organization of the Smithsonian institution, of which he was one of the first regents. He has written several works, among which may be mentioned "New Views of Society" (12mo., New York, 1825); and "Hints on Public Architecture," with 113 illustrations, published by the Smithsonian institution (4to., New York, 1849). His last work, entitled "Footfalls on the Boundaries of Another World" (Philadelphia, 1859), is a collection of stories of supernatural events, claimed to be well authenticated. III. David Dale, an American geologist, brother of the preceding, born in Lanarkshire, Scotland, June 24, 1807, died in New Harmony, Ind., Nov. 13, 1860. He was educated with his brother Robert Dale at Hofwyl, Switzerland, and in 1826, accompanied his father to the settlement established by the latter in New Harmony. He subsequently passed two years in studying geology and other branches of natural science in Europe, and in 1833 took up his permanent residence in the United States. In 1835 he received the degree of M.D. from the Ohio medical college, and two years later was employed by the legislature of Indiana to make a geological reconnoissance of the state, the results of which were published in a small work of which a reprint appeared in 1859. He subsequently, under instructions from the general land office, made a minute examination of the mineral lands of Iowa; and in 1848, having spent the interval chiefly in scientific studies, he was employed by the government to conduct the geological survey of Wisconsin, Iowa, and Minnesota. The result of 3 years' labor in this extensive field was in 1852 published by congress in a 4to. volume, embracing over 600 pages, accompanied by numerous maps and illustrations executed in the highest style of the art. During the next 5 years, from 1852 to 1857, he conducted the survey of the state of Kentucky, 3 volumes relating to which with maps and illustrations have been published; the 4th was sent to press a few weeks before his death. In 1857 he was appointed state geologist of Arkansas, and in the succeeding year the report of his survey was published in 1 vol. 8vo. The preparation of a companion volume to this was among his latest labors. He also conducted various important examinations for private individuals and corporations. He was an indefatigable and enthusiastic laborer in his peculiar walk, and hastened his death by the exposure incidental to camp life in the miasmatic regions last surveyed by him. He had just finished a private museum and laboratory said to be one of the most complete in the country.

OWEN, William, an English painter, born in Ludlow, Shropshire, in 1769, died in London, Feb. 11, 1825. He was instructed in painting by Cotton and Sir Joshua Reynolds, and in 1792 commenced his career as a portrait painter. His portrait of Sir William Scott, afterward Lord Stowell, has been pronounced worthy of Vandyke. In 1806 he became a royal academician. He declined the honor of knighthood as an expensive distinction. He painted some fancy pieces, including the "Daughter of the Beggar of Bethnal Green," the "Sleeping Girl," the "Children in the Wood," &c. According to Wornum, he was superior to Lawrence in male heads.

OWHYHEE. See Sandwich Islands.

OWL, the general name of the nocturnal birds of prey constituting the family of *strigidæ*, of which there are 5 sub-families, 18 genera, and about 150 species, more than 40 of which inhabit America. Owls may be at once recognized by their short and bulky form, with head disproportionately large, fully feathered, and often furnished with erectile tufts like the ears of quadrupeds; the eyes are very large, directed forward, more or less surrounded by a disk of radiating bristly feathers, and in most formed for seeing in twilight or at night, presenting a ludicrous vacant stare when exposed to daylight; lores densely covered with bristly feathers directed forward, nearly concealing the short, strong, and hooked bill; ears large, with a kind of operculum or cover, enabling them to hear slight noises in the stillness of night; the wings are generally moderate, broad and rounded, the outer edge of the primaries with separated barbs, adapted for vigorous and noiseless but not rapid flight in pursuit of living prey in morning and evening twilight; the tail broad, and of various lengths; tarsi usually short, strong, feathered to the toes except in the Asiatic genus *ketupa*; the inner toe the longest, and the outer capable of being turned back as in scansorial birds; the claws long, curved, and very acute. The plumage is soft and downy; the female is the larger, resembling the male in colors; the expression of the face and eyes is cat-like; the eggs are [illegible] and white, and the young are covered with a fine down. The mouth is very wide, and the œsophagus capacious, leading directly to the stomach, without any dilatation or crop; the intestines are short, and with 2 large cæca. Owls are solitary birds, retiring during the day to holes in trees, caves, or old buildings, where they roost and breed; most are nocturnal, but a few fly by day, in habits resembling the *falconidæ*, especially the kites; the larger species feed on small quadrupeds (particularly mice) and birds, and the smaller on insects, such as moths and large beetles; if the prey be small, it is swallowed whole, or is torn to pieces if necessary, and the indigestible portions, such as feathers, hair, and bones, are disgorged from the stomach in small pellets. They are great benefactors to man by destroying mice and other noxious animals; but from their nocturnal habits and dismal screeching cry they are generally regarded with superstitious fear, and as ominous of some present or future calamity or foul deed. In the Scriptures the owl is almost always associated with desolation; painters, poets, and story tellers introduce it as a bird of ill omen, and as the companion of ghosts, witches, demons, and magicians; almost all uncultivated nations look upon it as an unwelcome visitor; the ancient Greeks and Romans, however, made it the emblem of wisdom, and sacred to Minerva, and indeed its large head and solemn eyes give it an air of wisdom, which its brain does not sanction.—In the 1st sub-family, the *striginæ*, the size is never very large; the head is smooth and bulky, and the facial disk perfect; the bill rather long, eyes rather small, legs long and feathered to the toes. In the genus *strix* (Linn.) belong the barn owls; in this the wings are long, and the head without tufts; of the dozen species scattered over the world will be mentioned only two. The American barn owl (*S. pratincola*, Bonap.) is 18 inches long, with an extent of wings of 3¾ feet in the female; the male is an inch shorter and 2 inches less in extent. The general color above is yellowish or grayish brown, finely mottled with light yellowish red, each feather having toward the end a central deep brown streak ending in a grayish white spot; quills and tail transversely banded with blackish brown; under coverts of wings and tail white; under parts pale brownish red, fading anteriorly into white, each feather tipped with a dark brown spot; the face white, tinged with red, with a ruff of light brownish red; the bill, toes, and claws light yellowish. It occurs throughout temperate North America, breeding at all seasons in the southern states; it is not found far from the sea, and frequents the borders of woods and open abandoned fields; it feeds almost entirely on quadrupeds, and sometimes digs up moles and mice like the burrowing owl; its flight is light, regular, and protracted, and it runs rapidly; according to Audubon it makes no cry, but utters a hollow hissing sound. The European barn owl (*S. flammea*, Linn.) is considerably smaller than the American, being only 14 inches in length and 3 feet in extent of wings; it is lighter colored, more yellowish, with gray and brown zigzag lines and whitish dots above; it is whitish below, and the ruff is white. It is found abundantly in Great Britain and other temperate parts of Europe, in Asia, and in Africa, especially in cultivated districts in the neighborhood of fields and farm yards where it can find a plentiful supply of mice; though a single bird will destroy annually several hundred mice and moles, beside noxious insects, it is constantly persecuted for its alleged injury to game birds and the dove cote; it sometimes captures fish by dropping upon them in the water; its general note is a screech, hence it is commonly called screech owl in Great Britain; it rears several broods in a season between July and December. In the genus *phodilus* (Is. Geoffr.), the single species *P. badius* (Horsf.), found in the thick forests of Java, in the haunts of the tiger, is said to be very familiar with this animal, even alighting on its back; the native name is *wowo-wiwi*.—In the 2d sub-family, the *buboninæ*, the facial disk is incomplete above the eyes and bill, and the large, broad, and flat head is furnished with a pair of long erectile ear tufts, which have given them the name of horned owls; legs and claws usually very strong. This family is spread all over the world, except in Australia, and contains some of the largest as well as some of the smallest of the family. The genus *bubo* (Cuv.) is of large size and robust form; the large eyes and ear tufts have given them the name of cat owls; the wings are long, the tail short, the legs densely feathered, the bill short, and the claws very strong. The American great horned owl (*B. Virginianus*, Gmel.) is from 20 to 25 inches long, with an extent of wings of 4½ to 5 feet, the bill along the ridge 2 inches, and the ear tufts 3; the color is variable from dark brown to nearly white; the general color above is dark brown, every feather mottled with irregular lines of pale ash and reddish fulvous, the base of each being of the latter color; throat and neck white, breast with longitudinal black stripes, rest of under parts mixed white and fulvous with narrow transverse dark brown lines; iris yellow, bill and claws bluish black. It is found throughout North America, and probably also in South America, several varieties being described in different latitudes, in mountain and plain, on the seashore and in the interior; the flight is elevated, rapid, and graceful; it makes a great variety of sounds, barking like a dog, hallooing and leading astray the benighted traveller, saluting him by notes like the half suppressed screams and gurglings of a suffocating person, or deceiving him by a low "hoo-hoo-hoo-e" which seems a great distance off. It commits great havoc in the farm yard, seizing all kinds of domestic poultry, to which may be added grouse, ducks, hares, squirrels, and opossums, and even dead fish. They begin to pair in February, making a bulky nest usually on a large horizontal branch, and rear only one brood of 3 to 6 in a season. It is a bold and powerful bird, bravely resisting when attacked. The European horned or eagle owl (*B. maximus*, Sibb.), *le grand duc* of the French, is about 26 inches long with an extent of wings of 5 feet; it is common in the forests of Europe from the Mediterranean to Norway and Lapland, but is rare in Great Britain; it occurs also in Asia; its habits are the same as those of the American bird; the general color is ferruginous, varied with spots and markings of brown, black, and gray; in captivity it is fierce, hissing, snapping, and barking when irritated, but making no other noises. The *B. Bengalensis* (Frankl.) feeds principally upon rats, and compensates for some of the mischief done by the other species. The genus *scops* (Sav.), or *ephialtes* (Keys. and Blas.), is characterized by small size, conspicuous ear tufts and large head, and long tarsi more or less covered with short feathers. The mottled or American screech owl (*S. asio*, Linn.) is about 10 inches long and 22 in extent of wings; in the adults the plumage above is pale ashy brown with longitudinal brownish black lines, mottled with the same and cinereous, and below ashy white with similar stripes and lines; bill and claws horn color; in young birds the upper parts are pale brownish red, in some parts rufous, and below yellowish gray, hence called the red owl. This is the most abundant owl in the Atlantic states, and is found over the whole of temperate North America, and even as far as Greenland; its food consists principally of beetles and field mice, which it seeks in the neighborhood of farm houses, orchards, and gardens, where it is rarely molested; its notes are mournful and tremulous, like the chattering of teeth, but loud enough to be heard for several hundred yards. The little horned owl of Europe (*S. Aldrovandi*, Ray) is about 8 inches long, of a light gray color variegated with brown, with longitudinal brownish black lines and transverse undulations; it is most abundant in southern Europe in wooded districts, where it feeds on insects and mice; it is also found in N. Africa and Asia, and rarely in Great Britain; it nestles in cavities in rocks and holes in trees, laying 2 to 4 eggs; it is gentle, and readily tamed; its notes are plaintive and monotonous, resembling "keu, keu," and are kept up regularly the night long. In the genus *otus* (Cuv.) the form is larger and more slender, the head moderate with more perfect facial disk, and the eyes rather small. The American long-eared owl (*O. Wilsonianus*, Less.) is about 15 inches long, with an extent of wings of 3½ feet; it is rather a handsome bird, very intricately marked, and may be generally described as of a buff color, mottled and spotted with brown and grayish white; it inhabits the whole of temperate North America, and even the shores of Hudson's bay; it is strictly nocturnal, preying upon insects, and small mammals and birds; it deposits its eggs in the abandoned nest of other birds, in a fissure of a rock, a hole in a tree, or a hollow in the ground; its cry is plaintive, consisting of 2 or 3 prolonged notes repeated at intervals. The European long-eared owl (*O. vulgaris*, Flem.) bears a strong resemblance to the American species, and is one of the most abundant of the family in England, where it remains all the year round; it is intricately dappled with dark brown and black upon pale brown, and is a very handsome bird; it frequents ivy-covered towers and trees, where it remains during the day; it rarely makes a nest of its own, using those of the crow or squirrel. The American short-eared owl has been made, with others, into the genus *brachyotus* (Gould), characterized by inconspicuous ear tufts; this species (*B. Cassinii*, Brewer) is about 15 inches long, with an extent of wings of 3½ feet; the plumage is reddish buff, streaked longitudinally with dark brown, the tail being of the same color barred and tipped with reddish buff; it is found in North America from Greenland to Cuba and from the Atlantic to the Pacific, in the eastern states in the winter preferring the vicinity of marshes and meadows; it is very fond of remaining on the ground, on which it advances by long leaps. The European short-eared owl (*B. palustris*, Gould), 14 inches long and 40 in alar extent, much resembles the preceding species; it seeks its food by day, even in full sunlight, pursuing pigeons and domestic fowls into the farm yard, though feeding chiefly upon mice. In the Asiatic genus *ketupa* (Less.) the long tarsi are covered with scales instead of feathers; the *K. flavipes* (Hodgs.) is somewhat diurnal, and plunges into streams in pursuit of fish and crabs; the *K. Ceylonensis* (Gm.) is said to have a very disagreeable hoarse and hollow laugh, like the syllables "haw, haw, haw, ho."—In the 3d sub-family, the [illegible] or gray owls, the head is large, with small and concealed or no ear tufts; the facial disk nearly perfect, eyes small, wings rather short, and tarsi and toes generally fully feathered. Though this sub-family contains some of the largest owls, the size is usually moderate and sometimes even small. In the genus *syrnium* (Sav.), characterized by large size, a long, wide, and rounded tail, belongs the great gray owl (*S. cinereum*, Gmel.), the largest in North America, and one of the largest of the family, about 30 inches long, with an alar extent of 4 feet; the prevailing color is ashy brown above mottled and barred with ashy white; the under parts of the latter color, with longitudinal brown stripes on the breast, and transverse ones of the same on the abdomen; quills and tail brown, with 5 wide bands of ashy white; bill yellow. It is found in North America from New Jersey to Hudson's bay; it is rather diurnal in habit, frequenting wooded districts and preying on hares and other rodents; its cry resembles that of the mottled owl. The barred owl (*S. nebulosum*, Forst.) is about [illegible] inches long, and 40 in alar extent; the bill yellow; the general color above is light [illegible] brown, largely spotted with white on the back and wing coverts; wings and tail tipped with grayish white; below pale brownish red, marked on the neck and upper breast with transverse and below this with longitudinal brown streaks; abdomen yellowish white; plumage, as in the preceding species, remarkably soft and downy. It is found in North America east of the Mississippi, especially in the southern states, in retired woods, even in the daytime; its loud discordant cry of "whah, whah, whah-aa," frequently repeated at evening twilight, has a ludicrous sound, compared by Audubon to the affected laugh of some fashionable people; its odd and lively movements entitle it to the name of the "buffoon of the woods." It preys on half-grown chickens, young hares and rabbits, squirrels, mice, small birds, and frogs; it begins to lay in the middle of March in a hollow tree, and raises a single brood in a season; in captivity it makes an excellent mouser; as it often appears in the daytime, it is specially liable to the attacks of diurnal birds, which have a natural antipathy to the whole family; its flesh is sometimes exposed for sale in the markets of New Orleans, and is considered palatable by the negroes. The hooting or tawny owl of Europe (*S. aluco*, Linn.) is about 15 inches long and 34 in alar extent; the upper parts are brownish red, tinged with gray, with longitudinal dark brown streaks and transverse lighter lines, and lower parts reddish or yellowish white with similar markings; large white spots on wing coverts; its cry is very doleful, like "hoo, hoo, hoo," or the howling of a wolf; it is strictly nocturnal, inhabiting thick woods, preying on the usual animals and birds, and sometimes seizing fish in the water. In the genus *nyctale* (Brehm.) the size is small, with very small ear tufts, facial disk nearly perfect, wings long, tail short, and legs and toes densely feathered. Here belongs the little Acadian owl or saw-whet (*N. Acadica*, Gmel.), about 8 inches long and 18 in alar extent; the upper parts are olivaceous brown, the back of neck, rump, and scapulars spotted with white; face and under parts ashy white, the latter with pale brown streaks; quills and tail brown, spotted with white; bill and claws dark. This is the smallest owl found in the eastern and middle states, and probably occurs over the whole of temperate North America. This lively and handsome owl is called "saw-whet," as its love notes much resemble the noise made by filing the teeth of a saw, often leading the inexperienced traveller to expect to find a sheltering saw mill in the depths of the forest; it is sometimes also called screech owl in the middle states; t is not unfrequently caught in large cities, and is nocturnal in its habits; its usual cry resembles that of the little horned owl of Europe. Another species is Tengmalm's owl (*N. Richardsonii*, Bonap.), the largest of the genus, rarely seen in the United States, though ommon at Hudson's bay; it is about 11 inches ong; its cry is a single melancholy note, repeated at intervals of a minute or two. Its European representative is the *N. funerea* Linn.), chocolate brown above, spotted with white, and yellowish white below, with brown streaks.—The 4th sub-family, *athenina* or bird owls, are of small size, with very imperfect facial disk, head without ear tufts, and tarsi thinly covered with feathers; rather diurnal in habit. The genus *athene* (Boie) has rather long wings, short bill and tail, long tarsi, and naked toes, and contains the burrowing owls. The American burrowing owls (*A. cunicularia*, Mol.; *A. hypugæa*, Bonap.) occupy respectively the country west of the Rocky mountains and that portion between these and the Mississippi river; the former may be distinguished from the latter by its rather larger size and the feathering of the tarsus uninterrupted to the toes; the plumage is light ashy brown above, with numerous large white spots; breast light brown, white-spotted; abdomen yellowish white with brown spots; the length is from 9½ to 10½ inches. They are found in considerable numbers on the plains in the Rocky mountains, inhabiting the burrows of the prairie squirrels and other rodents, to which they flee when alarmed, and in which they live and bring up their young; they are strictly diurnal, and feed on grasshoppers, crickets, and field mice; in other parts of the world they dig their own burrows. There are several species in India, where they sometimes make loud and continual noises; the *A. scutellata* (Raffl.) is said to make a noise like that of a half strangled cat; there are more than 40 species, mostly confined to warm climates; they are said to be remarkably infested with fleas.—The 5th sub-family is the *nycteinina* or day owls, characterized by compact form, moderate head without tufts, rather long wings and tail, and strong and densely plumed tarsi; it embraces only 2 genera, each with a single species, inhabiting the arctic regions of both hemispheres, migrating southward in winter. In the genus *nyctea* (Steph.) the size is large, the head has no facial disk, and the legs and bill are rather short. The snowy owl (*N. nivea*, Daud.) is from 21 to 27 inches long, with an alar extent of 4½ to 5¼ feet, and a weight of 4 to 5 lbs., according to sex; the general color is white, with the upper part of head and back with lunated dark brown spots, and the breast, sides, and thigh coverts with curved lines of the same; wings and their coverts and tail barred with oblong brown spots; some specimens, probably old birds, are almost entirely white. It is found in the northern regions of America, Europe, and Asia, coming within the United States as far as Georgia in the winter; it hunts in the daytime and at morning and evening twilight; of rapid and powerful flight, it strikes ducks, grouse, pigeons, &c., on the wing like a falcon, and seizes hares, squirrels, and rats from the ground, and fish from the shallows; from its color it is seen with difficulty amid the rocks and snow in its favorite haunts.

In the genus *surnia* (Dum.) the form is stout, but larger and more hawk-like; the wings and tail are long, and the legs rather short. The hawk or day owl (*S. ulula*, Linn.) is 16 to 17 inches long, with an alar extent of 33; the upper parts are sooty brown, with white spots on the shoulders; throat white, with dark brown stripes; brown spot on each side of breast; beneath with transverse lines of pale ashy brown; quills and tail brown, with numerous white bands; bill pale yellow. It is found in the northern regions of both hemispheres, in this country rarely going as far south as Pennsylvania; it is common in the fur countries, where it is often seen hunting by day, approaching the camps with great boldness; in the summer it feeds on squirrels, mice, and insects, and in winter principally on the ptarmigan and grouse. This bird approximates to the falcons in its bold and diurnal habits, and in the absence of facial disk and ear tufts, smaller size of the head, smaller eyes, and less developed ears; its eyes are adapted for the dim light of snow-clad and arctic regions.

OWL PARROT, a singular bird of the cockatoo family, of the genus *strigops* (Gray), found in New Zealand. In the only species described (*S. habroptilus*, Gray) the bill is high and short, grooved on the sides, with much curved culmen, acute tip, dentated lateral margins, and base covered by hair-like feathers; the wings are short and rounded, the 5th and 6th quills equal and longest; tail moderate, weak, much rounded, and each feather pointed with the shaft projecting; tarsi short and robust, covered with rounded scales; claws long, strong, and slightly curved. This is the *kakapo* or night parrot of the natives; it is about 2½ feet in length, of a dirty green color, with black transverse bands and brownish and yellowish spots; bill yellowish white. It has the general form of a parrot, with the facial expression, nocturnal habits, and noiseless flight of the owls; it lives in holes which it digs in the ground at the roots of trees; it is solitary, rarely seen, preferring moist and dark woods, and keeps chiefly on the ground, where its tracks are said to resemble those made by the human foot; its food consists of the roots of ferns and the outer covering of the New Zealand flax (*phormium tenax*); it breeds in February, laying 2 or 3 eggs; the voice is a hoarse croak. According to the natives, these birds assemble in the winter in caves in large numbers, dispersing again in the spring with a great noise; their flesh is white and is considered good eating. For an account of its habits see "Proceedings of the Zoological Society of London" (1852).

OWSLEY, an E. co. of Ky., intersected by the Kentucky river; area, about 460 sq. m.; pop. in 1850, 3,774, of whom 136 were slaves. It has a hilly and very broken surface, and a not very fertile soil. There are extensive forests and rich iron and coal mines. The productions in 1850 were 164,021 bushels of Indian corn, 8,843 of oats, 8,002 lbs. of wool, and 8,130 of tobacco. There were 2 newspaper offices, 6 churches, and 200 pupils attending public schools. Capital, Booneville.

OX. See CATTLE.

OX GALL, the bile of the ox, a viscid green or greenish yellow fluid, of bitter and slightly sweetish taste, and a peculiar nauseous odor, found chiefly in a membranous bag in the ox. It varies in consistency, sometimes being very limpid, and at others like a sirup. Potash and soda render it clearer. Its chemical composition is highly complicated, and is variously given by different authorities. The following is perhaps as nearly correct as any of the analytical results, viz.: in 800 parts—water 700, picromel 69, resinous matter 15, yellow matter 4, soda 4, phosphate of soda 2, chloride of sodium and potassium 3.5, sulphate of soda 0.8, phosphate of lime and perhaps of magnesia 1.2. Ox gall possesses properties which render it of value in the arts, and it has also been supposed to have medicinal properties as a tonic and laxative, and has been prescribed particularly with the view of increasing the biliary secretion. It dissolves greasy matters; and for cleansing woollen stuffs upon a large scale it is sometimes preferred to soap. To preserve it from putrefying it need only be evaporated at a gentle heat to the consistency of an extract, and when wanted for use it may be dissolved in water slightly alkaline. The purified ox gall is much used for artists on account of its property of combining with colors, giving them more tenacity and fixing them strongly, while it also makes them flow more freely and thus increases their lustre. It may either be mixed with the colors or applied to the paper after the colors. It is advantageously applied combined with gum Arabic as a light varnish, which however admits of other shades being added without mixing with the first. With lampblack and gum water it makes a beautiful black paint or ink that may be used instead of India ink. The lampblack is first mixed with the gum water, and the purified ox gall is then added. It fixes sketches in lead pencil, and does not prevent these from being afterward tinted with colors in which a small proportion of ox gall is mixed. It is highly recommended for use in painting on ivory, as it removes from this all greasy matter, and causes the colors to spread freely, and penetrate into the ivory. It is equally useful in the application of paints to transparent paper. For these effects it is essential that the purified article should be prepared from very fresh ox gall. The method of purifying in best repute is as follows: To a pint of the gall boiled and skimmed add an ounce of pulverized alum, and leave the liquor on the fire till the combination is complete. Another pint is treated in the same way with an ounce of common salt instead of alum. When cold the liquids are separately bottled and loosely corked. They should then be kept for 3 months, when a sediment subsides, and the liquor becomes clearer. There is still present a yellow coloring matter which would affect green and some other colors, and which is separated as a coagulum by turning off and mixing the clear portions of the two mixtures n equal quantities. The liquid is then obtained by filtering perfectly purified and colorless. It improves by age, and never disengages a bad odor, nor loses its useful properties.

OXALIC ACID, an important and powerful acid discovered by Scheele in 1776, or as claimed by some by Bergman; symbol $HOC_2O_3, 2HO$; chemical equivalent 63. It occurs in vegetables, animals, and rarely in minerals, as in the form of sesquioxalate of iron in Humboldtite. Of the juices of plants it is a frequent constituent. Its name is derived from its giving to the leaves of the wood sorrel (*oxalis acetosella*) their very acid taste. In this and in the common sorrel (*rumex acetosa*), it occurs combined with potash as binoxalate of potash. Combined with lime, it gives solidity to many ichens, and is found in the roots of rhubarb, valerian, and other plants. It is found in a free state in the bristles of the chick pea (*cicer arietinum*). It is artificially produced by the oxidation of sugar or of starch by nitric acid; other organic substances may be substituted for hose named, as rice, gum, wool, hair, silk, &c. Schlesinger's method, recommended by Berzeius as producing it in the largest quantity and of the purest quality, is to dissolve 1 part of dry loaf sugar in 8½ parts of nitric acid of specific gravity 1.38, and heat in a flask till effervescence, caused by the escape of carbonic acid and nitric oxide, ceases. The solution is then evaporated by a water bath to ⅙ of its bulk, and the acid crystallizes on cooling. The product varies greatly in quantity according to he manner in which the nitric acid is applied. t is sometimes rated at little more than half he amount of sugar; but 100 lbs. of sugar hould produce from 125 to 130 lbs. of oxalic cid, and the same weight of molasses from 105 o 110 lbs. The manufacturing chemists are aid to use a mixture of 112 lbs. of sugar, 560 lbs. of nitrate of potash, and 280 lbs. of sulphuric acid, and to obtain 135 lbs. of oxalic cid and 490 lbs. of supersulphate of potassa. The crystals are colorless, transparent prisms f 4 or 6 sides. They have a very sour taste, nd dissolve in 9 parts of cold or about 1 part f boiling water. In a very dry atmosphere they effloresce slightly, and gently heated they ecome opaque, and lose 2 atoms (28.5 per ent.) of water, their composition then being HOC_2O_3. The crystals may crumble to pow-er, and even be almost wholly sublimed, with-ut decomposition; but the other atom of water is expelled only at a decomposing heat, when the compound is converted into carbonic nd formic acids and carbonic oxide. If the whole of the water be abstracted by treatment with strong sulphuric acid, the elements of dry xalic acid are instantly resolved into equal vol-mes of carbonic acid and carbonic oxide. The compounds of oxalic acid may be anhydrous, as oxalate of lead, or retain one equivalent of water, as oxalate of lime. Of the compounds formed by oxalic acid, those of special interest are the oxalates of potash and the oxalate of lime. The former, known as "essential salt of lemons," are employed to remove ink stains from linen; the excess of acid unites with the oxide of iron of the ink and converts this into a soluble oxalate, which is then removed by water. For lime oxalic acid has a very strong affinity, separating it from its solution in much stronger acids, and converting it into an insoluble oxalate. The acid is consequently an excellent test of the presence of lime in solutions, and is used for this purpose, chiefly in combination with ammonia. Conversely, lime water is a test of the presence of oxalic acid, which is determined by the formation of a precipitate insoluble in excess of acid.—Oxalic acid is a corrosive poison, extremely virulent and rapid in its effects when taken into the stomach in large doses; and from the resemblance of its crystals to those of Epsom salts, it has often been sold and administered instead of this purgative with fatal effects. Its intensely sour taste might at once detect it; but the dose is usually swallowed in haste without suspicion of danger. The acid corrodes the mucous membrane of the throat and stomach, causes intense pain and violent attempts to vomit, and death sometimes ensues in 10 minutes. Emetics and the stomach pump may be immediately applied, but the true antidote is copious draughts of water containing pulverized chalk or magnesia. These neutralize the acid, forming with it an insoluble oxalate of lime or magnesia, either of which is harmless. Though so dangerous in large doses, oxalic acid largely diluted with water and sweetened with sugar may be used as a refreshing beverage in febrile diseases; and it has even been recommended as a remedy for inflammation of the mucous membrane.—Oxalic acid is largely employed in calico printing for discharging colors; it is also used for cleaning the straw of bonnet makers, the leather of boot tops, and for removing stains of ink and iron rust from fabrics.

OXENFORD, JOHN, an English miscellaneous author, born at Camberwell, near London, in 1812. He was admitted to the bar in 1833, but turned his attention principally to literature and the drama, and has produced several pieces for the stage, among which the most popular are: "My Fellow Clerk" (1835), "Twice Killed" (1835), and "A Day Well Spent" (1836). He has also been a student of French and German literature, and has published translations of part of the "Autobiography of Goethe," the "Conversations of Eckermann with Goethe" (1850), the "Hellas" of Jacobs (1855), a collection of songs from the French, entitled "Illustrated Book of French Songs" (1855), and Kuno Fischer's "Essay on Lord Bacon and his Philosophy" (1857). He contributed several biographical articles to the "Penny Cyclopædia," has been engaged as a theatrical critic for the press for many years, has written several songs for music, and has furnished to the magazines translations of various German poems.

OXENSTIERN, or Oxenstjerna, Axel, count of, a Swedish statesman, born at Fanöe, in Upland, in 1583, died in 1654. He belonged to one of the most illustrious families of Sweden. After studying at the universities of Rostock, Wittenberg, and Jena, giving particular attention to theology, he visited most of the German courts, and in 1602 was recalled home to take the oath of allegiance to the new king Charles IX. In 1606 he was sent on a mission to Mecklenburg; in 1608 he was made a member of the senate, in which no fewer than 13 of his ancestors had held seats; and when the king became by old age incapacitated from ruling, he was chosen president of the council of regency. On the accession of Gustavus Adolphus in 1611 he was promoted to the chancellorship, the highest office in the kingdom, concluded a peace between Denmark and Sweden in 1613, accompanied the king to Livonia in his campaigns against the Russians, and in 1617 negotiated the treaty of Stolbova, by which Sweden gained a large territory along the Baltic. During the following years he was actively engaged in warlike operations or negotiations more or less connected with the 30 years' war, and in 1629, through the mediation of France and England, succeeded in concluding an armistice for 6 years between Sweden and Poland. He accompanied Gustavus Adolphus in his German campaign, and on the death of the king at Lützen in 1632 assumed the task of continuing the war. He was invested with full powers by the Swedish *Riksdag*, and elected, in the German Protestant assembly of Heilbronn, chief of the league against Austria. Nothing discouraged by the disastrous battle of Nördlingen in 1634, he evinced unwearied vigor in creating military resources and carrying on hostilities; and it was not until every thing had been placed on a safe footing in Germany that he returned to Sweden, to resume his duties as chancellor and act as one of the guardians of the young queen Christina. He was the actual ruler of Sweden during the queen's minority. He improved the finances, encouraged trade, and patronized learning; and when the sovereign became of age in 1645 the kingdom was in a most prosperous condition. For a few years Christina occasionally took advice from her chancellor; but the intrigues of the courtiers gradually undermined his influence, and his warnings proved ineffectual to prevent her from abdicating the throne in favor of her cousin Charles Gustavus. Oxenstiern was an accomplished scholar. Some of his writings, including his correspondence with his son during the negotiations which preceded the peace of Westphalia, have been printed. The 2d volume of the *Historia Belli Sueco-Germanici*, the first of which is from the pen of Chemnitz, is ascribed to him.

OXEYE, the trivial name of a syngenesious plant of the natural order of *compositæ*, once called *buphthalmum*, a word of the same signification, but now known as *heliopsis lævis* (Persoon). The oxeye belongs to that natural section represented in the sunflower; it has rather large, many-flowered heads, the ray florets 10 or more, pistillate in a single series, those of the disk tubular and perfect; the receptacle conical; the smooth 4-angled achenia somewhat embraced by the lanceolate or linear chaff. It is a perennial herb with ovate, petioled, triply nerved, serrate leaves, and yellow flowers, found on banks of streams and in dry soils throughout the United States. Two or more varieties are known, and several intermediate forms. The sea oxeye (*borrichia frutescens*, De Candolle) is a low, shrubby, maritime, silky pubescent plant, with coriaceous or fleshy, opposite, nearly entire leaves and solitary, peduncled, terminal heads of yellow flowers with blackish anthers, growing in Virginia and at the south. Another species is a shrub 5 to 10 feet high, the *B. arborescens* (De C.), found at Key West, Florida.—Quite a distinct plant, known as whiteweed, white daisy, or oxeye daisy (*leucanthemum vulgare*, De C.), is likewise sometimes called oxeye. It is a large, showy, troublesome weed, probably introduced from Europe, and spread far and wide over the mowing and grass fields of the United States, and seen also in Canada and Oregon. So rapidly and abundantly does it increase when it has found a hold, that in some regions the fields appear white when it is in full flower. It is considered as nearly worthless, though when cut with the hay crop horses and cattle will partake of it in their feed. In agriculture it is universally regarded as an intruder, and often defies every attempt to expel it, yielding only to an annual ploughing and cropping of the ground. There are two other species known, viz.: *L. integrifolium* (De C.), a dwarf hairy plant, with spatulate linear leaves and flowers with white, elliptical rays, seen on the shores of arctic America; and the *L. arcticum* (De C.), with a low, simple, nearly glabrous stem, 5 to 10 inches high, and with leaves and flowers as large as those of the whiteweed, a plant extending in its range from arctic America southward to Hudson's bay and Fort Vancouver. The white oxeye or whiteweed is a representative of the *chrysanthemum*, some species of which (*e. g.*, *C. segetum*, Linn.) are troublesome weeds in the fields of Europe.

OXFORD, a S. W. co. of Me., bordering on New Hampshire, watered by the Androscoggin, Saco, and other rivers; area, about [illegible] m.; pop. in 1850, 39,763. Its surface is in some parts broken and mountainous, but the soil is generally fertile. There are several large lakes, of which Molechunkemunk, Parmachena, and many smaller ones, are wholly within the county, and Umbagog and Mooselucmaguntic partly. The productions in 1850 were 227,439 bushels of Indian corn, 4 of potatoes, 146,266 of oats, 40,225 of wheat, 69,309 tons of hay, 156,353 lbs. of wool, and 837,475 of butter. There were 19 grist mills, 46 saw mills, 6 woollen factories, 4 founderies, 12 tanneries, 4 newspaper offices, 67 churches, and 13,051 pupils attending public schools. The county is traversed by the grand trunk railroad. Capital, Paris.

OXFORD. I. A township of Butler co., Ohio, on Four Mile creek, and on the Cincinnati and Indianapolis junction railroad, near the Indiana boundary; pop. in 1860 about 4,000. It contains a village of the same name, 33 m. N. W. from Cincinnati (pop. 1,500), noted as the seat of a university (see Miami University) and other institutions of education. The western female seminary, situated ½ m. S. E. of the village, has accommodations for 150 pupils and 10 teachers, and grounds comprising 30 acres. The school was established in 1853. The Oxford female college, incorporated in 1854, occupies a building 155 by 171 feet, 3 stories high, and accommodating 150 boarding pupils. The grounds embrace 35 acres on the hills overlooking Four Mile creek. The Oxford female institute is a boarding and day school. II. The capital of Lafayette co., Miss., on the Mississippi central railroad, 158 m. N. from Jackson. It is important as the seat of the state university, which was founded in 1848, and in 1860 had 10 instructors, 140 students, 222 alumni, and a library of 5,000 volumes. In 1850 there were 2 weekly newspapers and 2 churches.

OXFORD, an episcopal city and municipal and parliamentary borough of England, capital of Oxfordshire, situated on a gentle hill between the Cherwell and Isis, which here unite, 52 m. W. N. W. from London; pop. in 1851, 27,963. The ruins of an old wall, and the keep of a castle which now forms part of the gaol, show that it was formerly a place of some strength. Though irregularly built, with narrow, crooked streets and lanes and few good thoroughfares, its appearance from a distance, with its towers, spires, and stately public buildings risng among gardens and waters, is picturesque and imposing. The High street is less than ¾ of a mile long and of varying width, but nowhere exceeding 85 feet; but it is interesting for ts architectural contrasts, the noble collegiate edifices alternating with quaint old dwelling houses and modern shops. Nearly all the avenues are clean and well paved and lighted, and of late years many new streets have been opened, and other improvements are constantly going on. The city has an abundant supply of good water. The rivers are crossed by several bridges, among which are the Folly bridge over he Isis, Magdalen bridge over the Cherwell, and the seven bridges, a succession of strucures thrown across the Oxford canal and several small streams on the W. side of the city. The principal churches are the cathedral, which is the chapel of Christchurch college; St. May's, which serves as the university church, and has a fine spire; St. Martin's, the "city church," with a clock tower and illuminated dial fronting the High street; St. Peter's in the East, a venerable Norman edifice lately restored; St. Mary Magdalene's, St. Giles's, St. Michael's, St. Aldate's, and All Saints'. In 1851 there were 32 places of worship, 23 public schools, and 58 private schools. The city possesses a free reading room and library, public baths, workhouses, a savings bank, a dispensary, the Radcliffe infirmary, a pauper lunatic asylum, a music hall, a town hall, a council chamber with an interesting collection of portraits, and a county hall and law courts erected in 1840 at a cost of £15,000. There are no manufactures, and, with the exception of a trade in the grain produced in the neighborhood, the city depends for support almost entirely upon the university. It has ready communication with other parts of the kingdom by means of the river, the Oxford canal, and the great western, a branch of the London and north-western, and the Oxford, Worcester, and Wolverhampton railways. It is governed by 10 aldermen and 80 councillors, one of whom is mayor; but in certain matters respecting the night police, markets, &c., the university authorities have coördinate jurisdiction. It returns 2 members to parliament, beside 2 returned by the university. The date of its foundation is unknown. It is mentioned as a seat of learning by Pope Martin II. in 802. Tradition says it was a favorite residence of Alfred the Great, and in modern history it is noted for the execution of Ridley, Latimer, and Cranmer, and for the severity with which it was treated by the parliamentarians during the civil war.

OXFORD, University of, one of the two greatest seats of learning in Great Britain, was founded certainly as early as the reign of Edward the Confessor (1050), but the precise date is not known. Its origin, which has been ascribed without much probability to Alfred the Great, is traced to the monastic schools which existed there as appendages to various convents even before Alfred's time. Secular schools were soon established in imitation of these cloistral institutions. The teachers in time formed a voluntary association, dividing into different faculties the field of learning, and governed by a single house or legislature of which all the teachers were members. The students, who were generally poor boys, often mendicants, lodged in the town, or sheltered themselves in hovels or in the turrets of the city walls. Sometimes a number of them grouped together, hired an inn, hostel, or hall, and chose a graduate of one of the higher faculties to be their principal or guardian. The monasteries improved upon this plan by founding regularly endowed houses for the gratuitous support of poor scholars; and lastly, about the middle of the 13th century, independent colleges were founded under the plan of Walter de Merton, who made provision for the support of 20 poor scholars at Oxford, setting apart for the purpose an estate in Surrey to be managed by bailiffs controlled by a warden and the scholars. The idea of adding to the literary character of these colleges the religious features of an ecclesiastical society originated with William of Wykeham, who established New college in 1386, and whose example was imitated by several others. The students or fellows were bound to a life of celibacy, and, after a 7 years' study of the arts, spent 12 more in preparing for a degree in theology, civil law, medicine, or astronomy. They then became doctors or professors, and were generally expected to vacate their fellowships. Fellows after obtaining the degree of M.A. were required to teach the subjects belonging to their faculty anywhere in the university. After a time commoners or non-foundation members were admitted to the course of instruction imparted by the fellows, and thus the whole plan of the university became changed. The fellows or foundation members received their fellowships after taking the first degree, and were no longer pupils but teachers; and the collegiate instruction was bestowed entirely upon commoners, who were never contemplated in the original foundation. The first charter of privileges to the university as a corporate body was granted by Henry III. about 1244. The first building for the university proper, that is, a school for all the colleges in common, was erected by Thomas Hokenorton, abbot of Oseney, in the beginning of the 15th century. In 1571 Elizabeth granted a charter of incorporation. In the time of James I. the university acquired the right of sending two members to parliament. In the civil wars it was distinguished for its loyalty to the house of Stuart, and under the protectorate was given over to the Presbyterians and Independents, who expelled a number of professors and masters of colleges, and appointed others "to reform its discipline and correct its doctrines." From the time of the restoration its history was marked by no important event until the passing of the Oxford university reform act in 1854. The well known hostility between the citizens and the students is of long standing, feuds of "town and gown" having broken out into riots as early as 1240. On several occasions the students were obliged to remove from Oxford. The most serious disturbance on record occurred on St. Scholastica's day, Feb. 10, 1355, when several lives were lost; and the bishop of Lincoln, in whose diocese Oxford then was, laid the townsmen under an interdict, from which they were only released in 1357 on condition that the commonalty should yearly cause a service to be said in St. Mary's church for the souls of those killed in the combat, and the mayor, the 2 bailiffs, and 60 of the principal burghers then offer in person at the great altar a penny each, or forfeit 200 marks a year to the university. This penance was subsequently mitigated, but not entirely remitted until 1825.—The present statutes of the university were drawn up by Archbishop Laud in 1636, accepted by the university, and confirmed by patent from Charles I. in 1635. The corporation is styled "the chancellor, masters, and scholars of the university of Oxford." The chancellor is elected for life by the members of convocation, and for the last 200 years has been some nobleman of distinction, though he was originally an ecclesiastic and resident member. The present chancellor is the earl of Derby. The actual head is the vice-chancellor, who is nominated every year by the chancellor, and usually holds office 4 years by successive reappointments. He is selected from among the principals of colleges, and is a magistrate for Oxford, Oxfordshire, and Berkshire. The seneschallus, or high steward, is a nobleman nominated for life by the chancellor, and approved by the convocation. The enforcement of the rules is intrusted to 2 proctors, who are masters of arts chosen out of the several colleges in turn, and assisted by 4 pro-proctors. The public orator is an officer appointed by the convocation to write public letters and addresses, &c. The principal other officers are the keeper of the archives, assessor, registrar, librarians, keepers of the theatre, museums, galleries, observatory, &c., delegates of the press, of accounts, of appeals, of estates, and of privileges, and clerks of the markets. Connected with the university are 19 colleges and 5 halls, the latter differing from the former only in not being incorporated. These 24 establishments are quite distinct from the corporation of the university. Each is governed by a head elected for life, and styled principal, president, master, warden, rector, provost, or dean, and has its own statutes, though all the members are bound by the common rules of the university. The foundations of these colleges support 557 fellows, who correspond to the poor scholars of ancient times. Except at [illegible] college, they have the option if they remain unmarried of retaining their fellowships for life or receiving a church benefice. Until the passing of the reform act of 1854 they were not required to reside at their colleges. Some of the fellowships are of small value; others are comparatively munificent, though by the founders' statutes they are expressly restricted to the poor; the possession of 10 marks (about $33) was to vacate a fellowship at Brasenose. Fellows are generally chosen after receiving their bachelor's degree; they are the [illegible] of the college, and with the head constitute the corporate proprietors. The government of the university was formerly exercised by the heads of the colleges, who formed what was called the board of heads. Under the new reform act there are 3 legislative bodies: the hebdomadal council, consisting of the chancellor, vice-chancellor, 6 heads of colleges or halls, 6 professors of the university, and 6 members of convocation, having executive control, with the right of initiating new measures; the house of congregation, composed of all the principal officers of he university, heads of colleges and halls, proessors and assistants, public examiners, and all esident members, having the power to grant egrees, graces, and dispensations; and the ouse of convocation, consisting of the house f congregation with the addition of all masters f arts in their first year, and persons who have een regents, but have retired from the uniersity. The last is engaged only with the ore important affairs. Statutes framed by he hebdomadal council must be presented for pproval to both the other boards.—The proessors are 35 in number, viz.: regius profesors of divinity, pastoral theology, Hebrew, reek, civil law, medicine, ecclesiastical hisory, and modern history, Lady Margaret's rofessor of divinity, Saville's of astronomy, aville's of geometry, Camden's of history, aud's of Arabic, lord almoner's of Arabic, inaire of physiology, Viner's of common law, ord Lichfield's of clinical medicine, Aldrich's f chemistry, Boden of Sanscrit, Dean Ireland's f exegesis of Holy Scripture, the Radcliffe oberver, and professors of botany, natural philosphy, moral philosophy, experimental philosohy, mineralogy, geology, political economy, ural economy, Latin literature, logic, poetry, odern European languages, Anglo-Saxon, and usic. Attendance on their lectures however s not compulsory, and in point of fact the entire ducation of the students has been transferred rom the university to the separate colleges. In hese the fellows act as tutors, each one giving nstruction in the whole curriculum of study. The result of this system has been the practical nnihilation of the university proper, and the owering of the standard of education to the evel of the tutors, who are generally young en holding fellowships only until some beter opening in life presents itself. Students re consequently obliged to resort to the aid of rivate tutors. The students are compelled to onnect themselves with and reside in some ollege or hall. By the act of 1854, any maser of arts was entitled to open a private hall nder regulations to be made by the university; ut this measure has proved inoperative. There re 4 terms, viz.: Michaelmas, from Oct. 10 to Dec. 17; Hilary, from Jan. 14 to the day beore Palm Sunday; Easter, from the 10th day fter Easter to the day before Whitsunday; nd Trinity, from the Wednesday after Whitunday to the Saturday after the first Tuesday n July. Before proceeding to the examinaion for the degree of B.A. a student must ave kept 16 terms, unless he be a member of he peerage or the eldest son of a baronet or night, in which case 12 terms are sufficient. Practically, however, terms are so reckoned hat not more than 3 years' residence is reuired of anybody. Three public examinaions have to be passed before obtaining the legree of B.A., and those who have distinguished themselves are distributed into 4 lasses under the 4 great divisions of *literæ umaniores*, *disciplinæ mathematicæ et physicæ*, *scientiæ naturales*, and *jurisprudentia et historia moderna*. Since the agitation for university reform which led to the act of 1854, the range of studies has been considerably increased and the examination of candidates made stricter. By the same act all religious tests formerly required of students are abolished; headships, fellowships, and scholarships, formerly so restricted by the wills of founders in favor of certain classes, families, or locations, that out of the whole number of fellowships only 22 were open to public competition, are now mostly offered as rewards of merit; emoluments have been consolidated and redistributed, and colleges are empowered to alter and amend their statutes. The total revenue of the university from all sources is about £460,000 a year. Its separate revenue, apart from that of the colleges, and not including fees from students, is £7,500 a year, and its expenditure £7,000. The average income of heads of houses is £1,100, and of fellows £234. The professors are paid partly from the university funds and partly by foundation funds. The number of members on the books in 1854 was 6,259, and the number of students is about 1,300.—The principal university buildings are the schools, Bodleian library, theatre, Ashmolean museum, Clarendon, Radcliffe's library and observatory, university press, university galleries, Taylor institution, and university museum. The divinity school was completed about 1480. The Bodleian library, opened in 1602, occupies a fine room, and contains about 260,000 volumes. (See BODLEIAN LIBRARY.) The Ashmolean library was built in 1683 to receive a collection of rarities presented by Elias Ashmole. The Clarendon, built partly from the sale of Lord Clarendon's "History of the Rebellion," is used for various purposes; it was formerly the printing house. The Radcliffe library and observatory were founded under the will of Dr. John Radcliffe, who left for the former £40,000, beside £100 a year for the purchase of books, and £150 for the librarian. The books are all on medicine and natural history. The observatory comprises a dwelling house for the observer and a lecture room, and is well supplied with instruments. The printing house is an extensive quadrangular structure. The university galleries founded by the will of Dr. Randolph for the reception of the Pomfret statues, and the Taylor institution established by a bequest from Sir R. Taylor as a school of modern languages, form one handsome range of buildings designed by Mr. Cockerell. The new university museum, opened in 1860, is a magnificent quadrangular building in the mediæval style. The principal front contains apparatus and lecture rooms; one wing is devoted to the departments of anatomy, medicine, physiology, and zoology; another to those of chemistry, experimental philosophy, mineralogy, and geology, with a great lecture room; and the inner quadrangle, called the museum court, is intended to contain the collections. The university also has a botanic garden of about 5 acres. University college, founded according to tradition by Alfred the Great and restored by William of Durham, who died in 1249, stands on the High street. Baliol college was founded by John Baliol, father of the Scottish king of that name, and by Devorguilla his wife, between 1263 and 1268. Merton college, founded at Malden, Surrey, in 1264, by Walter de Merton, and removed to Oxford in 1274, consists of 3 courts, and presents some of the most interesting specimens of ancient architecture in Oxford. Exeter college, founded in 1314 by Walter de Stapledon, bishop of Exeter, has a handsome front rebuilt in 1835, and a magnificent Gothic chapel completed in 1860. Oriel college was established by Edward II. in 1326; Queen's college, occupying 2 fine courts on the High street, by Robert Eglesfield, confessor to Queen Philippa, in 1340; New college, a remarkably beautiful Gothic edifice, by William of Wykeham in 1386; Lincoln college by Richard Fleming, bishop of Lincoln, in 1427; and All Souls' college, occupying 2 grand quadrangles, by Archbishop Chichele in 1437. The last is not engaged in education, having no members but the warden and fellows, with chaplains and clerks; but an effort is now (Jan. 1861) making to open it to students. Magdalen college, famous for its beautiful gardens and almost unrivalled in Oxford for its architecture, was founded by William of Waynefleete in 1456. Brasenose college was founded by William Smith, bishop of Lincoln, in 1509; and Corpus Christi college by Richard Fox, bishop of Winchester, in 1516. Christchurch college was originally established by Cardinal Wolsey in 1526 for a dean, sub-dean, 100 canons, 10 public readers, 13 chaplains, an organist, 12 clerks, and 13 choristers. Suppressed by Henry VIII. on the cardinal's disgrace, it was revived on a smaller scale in 1535, again suppressed in 1545, and reëstablished in 1546 on the foundation of the see of Oxford as an appendage to the cathedral church. This is the largest and finest of all the colleges. Over the principal gateway rises a grand tower begun by Wolsey and finished in 1681 by Sir Christopher Wren, and containing "great Tom of Oxford," the famous bell, 17,000 pounds in weight, whose tolling summons all the scholars of the university to their respective colleges at 9 o'clock every night. The college has a picture gallery rich in works of the Italian masters, and enjoys the distinction of possessing the most splendid kitchen in Europe. Trinity college was founded in 1554 by Sir Thomas Pope; St. John's college in 1557 by Sir Thomas White; Jesus college in 1571 by Dr. Hugh Price; Wadham college, memorable as the birthplace of the royal society, by Nicholas Wadham in 1613; Pembroke college by Thomas Tesdale in 1620; and Worcester college, originally called Gloucester hall, by Sir Thomas Cookes in 1714. St. Mary hall, originally the parsonage of St. Mary's church, was converted to its present uses in 1333, but the buildings were substantially rebuilt in the 18th century. Magdalen hall was built adjoining Magdalen college about 1353, and became an independent academical hall about 1518. In 1822 the members removed to the buildings of the extinct Hertford college. New Inn hall, previously a part of New college, became independent in [illegible] St. Alban hall, originally belonging to the nuns of Littlemore, was granted to Merton college in 1547, and soon afterward acquired a separate establishment. St. Edmund hall was devoted to academical purposes by the canons of Osney in 1269; after the dissolution of monasteries it was transferred to Queen's college, and was reëstablished as a hall in 1559.

OXFORD, Earl of. See Harley, Robert.

OXFORDSHIRE, a S. county of England, bordered S. and S. W. for 70 m. by the river Thames or Isis, and enclosed by the counties of Warwick, Northampton, Buckingham, Berkshire, and Gloucester; area, 756 sq. m.; pop. in 1851, 170,286. It is very irregular in outline, having a breadth of from 7 to 38 m. and an extreme length of 50 m. The surface is extremely varied. In the S. E. are the Chiltern hills, offering most agreeable and diversified scenery and abounding in forests and tracts of fertile land; the central and N. portion, with the exception of a not very elevated ridge, are mostly flat, but well cultivated. The principal rivers are the Thames, or Isis (by which latter name it is known until it is joined by the Thame), the Evenlode, Windrush, and Cherwell. The soil is generally very fertile, and the people are principally engaged in agriculture, especially in dairy husbandry. The county has long enjoyed a reputation for its beautiful woods and the abundance of its meadows and pastures. There are many interesting antiquarian remains. It sends 8 members to parliament: [illegible] for the county, 2 for the city of Oxford, [illegible] the university, and 1 for Woodstock.

OXIDE OF CARBON. See Carbonic Oxide.

OXIDES. See Oxygen, and Nomenclature.

OXPECKER, a bird of the starling family and the genus *buphaga* (Linn.), inhabiting the warm parts of Africa; it is also called "beef-eater." The bill is pincer-like, stout and [illegible] at the base, with depressed culmen and [illegible] tip; the wings long and pointed, the first [illegible] very short and the third the longest; the [illegible] long, broad, and wedge-shaped, with the [illegible] of each feather pointed; tarsi and toes short, and the claws compressed, curved, and [illegible] The best known species, *B. Africana* (Linn.), is between 8 and 9 inches long, reddish [illegible] above and yellowish white below; the [illegible] yellowish, with a red tip. It is a shy [illegible] generally seen in flocks of 7 or 8, [illegible] of cattle, buffaloes, and antelopes, [illegible] their backs and extracting the larvæ [illegible] flies (*œstridæ*) which infest them; the [illegible] of the bill at the end is admirably adapted ently squeezing out these and other parasites rom under the skin; this forms their chief ood, and the cattle allow them to perch on heir backs, as if conscious of their intended ood offices. Another species, *B. erythrorhyn-ha* (Stanl.), has a red bill.

OXUS. See Jihoon.

OXYGEN (Gr. *ὀξυς*, acid, and *γενναω*, to enerate), an elementary gas discovered in 774 by Priestley, and soon after by Scheele in weden and Lavoisier in France. It was named xygen by Lavoisier because it was deemed the ssential acidifying principle, and the name has ince continued in use, although acids are known which contain no oxygen, and some of its compounds, as all the protoxides of the metals, ave the properties of bases neutralizing acids with which they combine. The symbol of this as is O, its equivalent 8, its specific gravity bout 1,111, air being 1,000. When its compounds are decomposed by galvanic action it lways appears at the positive pole, and it anks as the most electro-negative of all bodies. It possesses neither taste, odor, color, nor acid eaction, and is not condensable by any degree f pressure and cold which we can command. No element is so universally diffused, and none lays a more important part in the economy f nature, in the animal, vegetable, and mineral kingdoms. It forms ⅕ part of the air we reathe, and without it respiration would soon ease. (See Atmosphere.) So essential is it to nimal and vegetable life, that it has been ermed the vital air. It is an element of water lso, which is composed of 8 parts by weight of xygen and 1 part of hydrogen. It is an ingredient of nearly all organic bodies; and all the earths, silica, magnesia, alumina, lime, &c., which constitute the principal portion of the rocks and soils, contain a large and definite proportion of oxygen, which gives to them the character of oxides. Though the gas is necessary to respiration, it cannot long be breathed with impunity undiluted. In the case of rabbits breathing it pure, the respiration after an hour or more becomes very rapid and the system generally highly excited. Debility and stupor succeed, and death occurs within 10 or 12 hours, the heart, however, still continuing to beat for some time after the breathing has ceased. The blood both in the veins and arteries is found to be highly florid. This stimulating property has suggested the application of oxygen or of the nitrous oxide gas, which is more rich in oxygen than common air, for inflating the lungs of persons recently drowned. The ordinary process of combustion is dependent upon oxygen, being the chemical union with oxygen of the body consumed; but the phenomena of light, heat, and fire attending combustion are also exhibited when some substances are consumed in chlorine, or in the vapors of bromine, iodine, or sulphur. Excepting fluorine, all bodies may be made to burn in oxygen; but with many the process goes on slowly, and the heat and light developed by rapid combustion, and which, as the term is commonly used, are essential to the process, are not perceived. A definite amount of heat is, however, evolved in this chemical change, and it is estimated for given quantities of many combustibles by Despretz and others, as described in Fuel. (See also Combustion, and Flame.) When the process is conducted in pure oxygen, even some of the metals commonly regarded as incombustible may be made to burn with wonderful brilliancy, and produce in their oxides genuine products of combustion. —Oxygen cannot be readily obtained by separating it from the nitrogen of the air, there being no method of absorbing the latter gas known. Boussingault (*Comptes rendus*, vol. xxx. p. 261, and *Annales de chimie physique* [3], vol. xxx. p. 5) has shown that baryta may be made use of to absorb oxygen, the mineral being at a low red heat. It is thus converted into peroxide of baryta, and this, when subjected to a still higher temperature or to a current of steam, gives up its second atom of oxygen in a free state. By the use of hydrate of baryta, it has been thought the gas could be advantageously procured in the large way. Oxygen is freely yielded by many of its solid compounds when these are exposed to high temperature. Priestley obtained it by heating the red precipitate, oxide of mercury, which was thus converted into metallic mercury and oxygen gas. The mineral black oxide of manganese is a cheap and convenient source of oxygen. It is coarsely pulverized and introduced into an iron bottle, to the neck of which an iron tube is tightly fitted. The bottle is then heated to redness, when the gas soon escapes through the tube. Three atoms of the peroxide of manganese, $3MnO_2$, are converted into the red oxide, $MnO+Mn_2O_3$, which remains in the retort, and 2 atoms of oxygen which escape. A pure ore of manganese should yield for each pound 1,400 cubic inches or a little more than 6 gallons of gas. The material preferred to all others for affording pure oxygen with little trouble is the salt chlorate of potash, which contains 39.2 per cent. of the gas, one atom combined with its potash, and 5 atoms with the chloric acid; thus, KO,ClO_5. When this salt is heated in a glass flask over a spirit lamp, it melts and freely gives off all its oxygen, the residue being chloride of potassium, KCl. Half an ounce should thus afford 270 cubic inches of pure gas. The chemical decomposition was found by Mitscherlich to take place at a much lower temperature if some thoroughly dried metallic powders, as the black oxide of copper or the binoxide of manganese, are intermixed to the extent of about one third of the whole with the potash salt.—When oxygen unites with other bodies, the process is called oxidation; and the removing of oxygen from its compounds is called deoxidizing. Three kinds of oxides or binary compounds of oxygen and other elements are recognized: 1, acids, as the nitric, sulphuric, carbonic, and many others, formed chiefly by the union of more than one equivalent of oxygen with one of an element usually non-metallic; 2, alkaline or basic, as soda, potash, lime, protoxide of iron, lead, &c., all combinations of an atom of oxygen with one of the metallic base; 3, neutral bodies, such as have neither acid nor alkaline properties, as water, the oxide of hydrogen, the nitrous oxide gas, the deutoxide of lead, &c.—By the action of the electric spark, or by the influence of phosphorus upon oxygen, a change is induced upon this element, and a substance is produced to which the name of ozone is given. (See OZONE.) Prof. Schönbein, who first made this observation, believes there are two kinds or allotropic modifications of active oxygen, which have the relations of + and —, or positive and negative, to each other, the one an ozone and the other an antozone, which being brought together neutralize each other, and the product is inactive oxygen. The oxygen of many oxy-compounds, as the oxides of the precious metals, the peroxides of manganese, lead, cobalt, &c., he regards as wholly or in part of the negatively active character, or ozone proper, and he hence distinguishes these compounds as "ozonids;" while that of another series of oxy-compounds, as the peroxide of hydrogen, barium, strontium, and the rest of the alkaline metals, is of the opposite character, and the compounds he classes as "antozonids." See his letter to Prof. Faraday in the "London, Dublin, and Edinburgh Philosophical Magazine," vol. xvi. p. 178, and in the "American Journal of Science," Jan. 1859.

OYER (law Fr. *oyer*, Lat. *auditus*, a hearing; from Lat. *audire*, to hear). When one of the parties to a suit declares on or otherwise pleads a deed, that is, an instrument under seal, and founds his claim or rests his defence upon it, he must generally make *profert* of it, or in other words, must aver in his pleadings that he produces the said writing in court. When pleadings were oral, that was strictly true; but now the party retains the instrument in his private custody until it is called for by his adversary. Of a writing so material to the suit of him who pleads it, the other has the right to know the tenor; and this he seeks by craving *oyer* of it. That would have been in the times of oral pleading literally a hearing; but now it is a reciting of the document, which spreads it on the record. Oyer will be granted or not to him who craves it, as he is or is not entitled to have it. In the first place, as to the occasion. Oyer is never granted except when profert is made. In the second place, as to the ground of awarding it, that is done on the consideration that the party who demands oyer cannot without it make intelligent answers to the claim which his opponent founds upon the instrument. Thus, for example, a plaintiff who pleads a deed is obliged to recite only so much of it as is directly material to his case; but if oyer of it be permitted to the defendant, he may be able to show that it is not a valid instrument, or may find in it other matter which will serve him by way of answer. It is a general rule, that profert is required only of deeds, because they are regarded as the only private writing on which an action can be directly founded. In the case of bills of exchange and promissory notes, and other unsealed writings, the action is technically brought, not on the writings themselves, but on the contract of which they are the parol evidence. Yet, in practice, the court will order a copy of bills and notes to be furnished to the defendant before he is obliged to plead. Profert need not be made of wills or of public records, for they are not, properly speaking, such instruments as deeds are; but if an executor bring a suit, he must plead and make profert of his letters testamentary, for they furnish his authority and right of action, which process rests upon them. While in general one who pleads a deed and makes title under it must make profert of it, this rule goes on the presumption that he has the control of the instrument. It therefore admits exception when in fact the deed is in the hands of the opposite party, or has been destroyed by him, or when it has been lost or destroyed by accident. These defences must be specially pleaded; for if one make a formal profert without being able to produce the deed in fact, when oyer of it is demanded, his opponent may demand judgment against him.—The right to have oyer may be generally stated thus. It will be awarded when profert is necessary and is also made. If profert were necessary, but was not made, the opposing party cannot have it, but must demur to the pleadings as insufficient. Finally, if profert was unnecessary, but was nevertheless made, as for example by way of inducement, there is no right of oyer, because the party pleading makes no title under the instrument. One who has the right of oyer is not bound to exercise it, but if he propose to found his answer on any matter contained in a deed of which profert was made, he must demand oyer of it, and set it forth *verbatim* in his pleading.

OYER AND TERMINER, the technical name of a commission issuing in England from the crown, to certain judges of the courts of Westminster (usually with some other persons joined with them as commissioners), by virtue whereof they take jurisdiction over treasons, felonies, and misdemeanors. These words were used in the commission when it was written in Norman French; and in English the authority is to "inquire, hear, and determine." This commission has been variously regulated in England at different times, by statute or by usage. A similar authority is given to the courts of criminal jurisdiction in the United States, usually by the statutes creating the courts and defining their powers; and this authority is of course limited in each case to the offences of which the court can take cognizance.

OYSTER, a well known marine acephalous mollusk, of the lamellibranchiate order, and genus *ostrea* (Linn.). The shells are very irregular, inequivalve, and lamellated, the right or upper shell being the smallest and flattest and moving forward with age, leaving a lengthening groove for the ligament exposed along the beak of the adhering valve, which is the left and lowest, the deepest and most capacious, and attached to foreign bodies by a calcareous growth from the shell itself; the shells are so variable in surface and shape that it would be difficult to describe them even if it were necessary, and for the same reason it is almost impossible strictly to define the limits of the species; there is only one adductor muscle to hold the valves together, and the small ligament at the hinge is inserted into a little depression on each side, without teeth or projecting plates. The animal is very simple; the mantle has a double fringe, and its lobes are widely separated, united only near the hinge; there is no vestige of foot; respiration is effected by means of vascular gills or membranous plates attached to the inner surface of the mantle, to which water is constantly brought by the ceaseless action of vibratile cilia; the mouth is jawless and toothless, but is provided with short labial processes separate from the gills for selecting food, consisting of minute particles brought to it by the respiratory currents; the intestine is comparatively short, with a few convolutions; the ventricle of the heart lies upon the rectum; by most writers oysters were considered hermaphrodite, but they are, according to Siebold and others, of separate sexes, though the females vastly preponderate, and are ovoviviparous; they are sensible of light, as is known by their closing the valves when reached by the shadow of an approaching boat, and have numerous short pedunculated yellowish brown eyes between the fringes for more than ⅓ of the length of the mantle. The adult oyster has no power of locomotion, and the only signs of vigorous movements are in the expulsion of the respiratory currents, the excrements, and the sperm or ova by the sudden closing of the valves and the contraction of the mantle; hence they have been considered as very low in the animal scale, and to be "as stupid as an oyster" has become a proverb; but it is said they can turn themselves if placed upside down, and the sensibility of the fringes and labial processes is acute. The eggs are expelled in a white, greasy, viscid fluid, called "spats" by the fishermen, which adhere to submarine bodies, and to each other, by their development forming the immense banks found upon some coasts, the old ones being destroyed by the pressure of the new ; fecundation is effected through the medium of the water, which conveys the sperm to the ova; the eggs are to a certain extent developed within the cavity of the mantle about the gills; to this cavity also gain access the floating ova of some of the smaller crustacea, and here the little, soft, yellowish white crab (*pinnothera*) is often developed to a considerable size, as must be known to every lover of oysters; this last is a parasitic inhabitant of the oyster shell, and is not a portion of its food, as the softness of the mouth of the latter does not admit of its attacking any resisting substance. Oysters are found in almost all seas, usually in from 2 to 6 fathoms of water, and never at a great distance from the shore; they are especially fond of tranquil waters or the gulfs formed by the mouths of great rivers; they cannot live in fresh water, but some species remain dry during the greater part of every tide; the tree oysters (*O. parasitica* and *polymorpha*), which attach themselves to mangrove and other bushes in the tropics, enclose within the shells a sufficient quantity of water to keep up the respiratory currents; this faculty, possessed more or less by all the family, renders practicable their transportation to great distances and facilitates the valuable trade thence resulting. This delicious bivalve has been highly esteemed as an article of food from the times of the ancient Greeks and Romans to the present day, whether in the fresh and raw state, cooked, or salted and pickled; they are of easy digestion, but not very nutritious, and act rather as a provocative to appetite by the saline water they contain in the raw state than as satisfying food; they are eaten all the year round, except in the months of May, June, July, and August, which is the spawning season; they are good even then, but it is fortunate that the supposition that they are then injurious, in addition to the difficulty of keeping them fresh during the heat of summer, comes in to allow them to breed and keep up a supply which otherwise might be locally exhausted, notwithstanding their great fecundity. The common oyster of Europe (*O. edulis*, Linn.), abundant on the coasts of Great Britain and France, occurs in large banks or beds, sometimes extending for miles, usually on rocky bottoms; from about the middle of August to the middle of May they are dredged from the bottom by a kind of iron rake drawn by a boat under full sail, several hundreds being taken at a single haul; these are transferred to artificial beds or parks in some favorable and accessible locality, where they are preserved for sale, continually growing in size and improving in flavor. The growth of the oyster is slow, it being only as large as a half dollar at the end of 4 to 6 months, and twice that size at the end of a year; in artificial beds the growth is usually slower, the full size not being attained till the 5th to the 7th year. The west coast of Scotland and the Hebrides have the best oysters of the British coast, and here in sheltered bays they acquire the green color so esteemed by the epicure, and supposed to be due to confervæ and similar colored growths in the breeding places. It is estimated that 30,000 bushels of oysters from artificial beds, and 100,000 bushels of sea oysters, are annually sent to the London market; the Jersey fishery employs during the season 1,500 men and as many women and children, and between 400 and 500 vessels. The oysters most esteemed in Paris come from the bay of Cancale in the English channel, and from the coasts of Brittany and Normandy. From the report to the French government, in 1859, of M. Coste, an eminent naturalist, who had been ordered to stock St. Brieuc bay with oysters, and who had accordingly planted 3,000 acres with 3,000,000 oysters, it appears that 20,000 of the size of ⅕ of an inch were attached to a simple apparatus no larger than a wheat sheaf, which would be ready for the market in 18 months; this crop would be inexhaustible, as each adult furnishes between 2,000,000 and 3,000,000 embryo oysters; he estimates that he can cover 12,000 acres annually with oyster beds at an expense of $2,000; believing it proved that industry guided by science may in this way form at the bottom of any sea not liable to the deposit of mud more abundant harvests than the earth affords, he proposes stocking the whole Atlantic and Mediterranean coasts of France, of Algeria and Corsica, and the salt ponds of the south of France.—The species most esteemed in America are the Virginian oyster (*O. Virginiana*, Lister) and the northern oyster (*O. borealis*, Lam.). In the *O. Virginiana* the shell is elongated and narrow, and the beaks pointed and not much curved; the surface of the smaller and upper valve when not worn presents everywhere leaf-like scales of a leaden color, and a lengthened pyramidal hinge-ridge along the beak; the muscular impression is nearly central, and of a dark chestnut or violet color; it often measures 12 to 15 inches in length, but is rarely more than 3 inches wide. This is the common oyster from Chesapeake bay southward; it is sometimes found in the vicinity of Boston, and also at the mouth of the river St. Lawrence; it multiplies so rapidly on some of the low shores of the southern states as to offer impediments to navigation, and to change the course of tidal currents. In the *O. borealis* the shell is more rounded and curved, with the beaks short and considerably curved; the surface is very irregular, presenting loosely arranged layers of a greenish color, with the margins more or less scalloped; the muscular impression is dark violet, and the interior chalky or greenish white; a common size is 5 or 6 inches in length, but it grows to the length of a foot and to a width of 6 inches. This is the common New York oyster, said also formerly to have been abundant in Massachusetts bay. Boston market is supplied principally from artificial beds derived from the Virginia and New York oysters; the flats in the vicinity of our large maritime cities are generally thickly beset with poles, indicating the localities of oyster beds. The oyster trade of Baltimore in 1860, exclusive of local consumption, was estimated to amount to $3,500,000; and that of the whole of Chesapeake bay in 1858 at $20,000,000, at the rate of $1 per bushel. Many of the American forms resemble those of the *O. edulis* of Europe, and the fishermen generally regard them as the same. The successful experiments of M. Coste, above referred to, merit a repetition in this country, and would doubtless in the same way open a new and profitable branch of industry to many of our seaports.—There are more than 60 species of oysters described in various parts of the world; those of tropical climates have generally a less delicious flavor than the natives of temperate zones; there have also lived about 200 species of fossil oysters from the time of the ammonites to the present epoch. The family *ostreadæ*, of which the oyster is the type, contains also the genus *anomia*, translucent, pearly white within, attached to rocks and weeds by a calcareous plug passing through a hole or notch in the right valve, the same species presenting a great variety of shapes from acquiring the form of the surface to which they are attached. Allied genera are *placuna*, like the *P. sella* or Hungarian saddle, and *P. placenta* of the Chinese seas, so transparent as to be used by the natives for glass in their windows; the *pecten* or scallop shell; and the *spondylus* or thorny oyster.

OYSTER CATCHER, a wading bird of the genus *hæmatopus* (Linn.). The bill is twice as long as the head, and is strong, straight, much compressed, sharp-edged, and truncated at the end; wings long and pointed, with the 1st quill the longest; tail moderate and even; tarsi strong, covered with reticulated plates anteriorly; toes strong, enlarged on the sides by a thickened membrane, and the middle united to the outer by a basal membrane; hind toe wanting; claws strong, broad, and slightly curved. There are about a dozen species, distributed in most parts of the world; they are either solitary, or occur in small flocks on the sea shore or salt marshes, feeding on various bivalve mollusks, crustaceans, marine worms and small fry, obtained from the retreating surf or dug from the mud and sand with the bill; they sometimes break the shells, pry them open or off the rocks with the compressed mandibles, or seize the soft bodies when the shells are gaping; they also suck sea urchins (*echini*). The flight is swift, strong, and long sustained during their migrations in large flocks; they are also good runners, swimmers, and divers. The American oyster catcher (*H. palliatus*, Temm.) is 17½ inches long and 3 feet in alar extent; in the winter plumage the body above is light ashy brown, darker on the rump; the upper tail coverts and wide diagonal band on the wing white; under parts white; bill and lids bright orange red; legs pale reddish; both sexes are alike; the summer plumage is much darker. This species is found on the Atlantic coast from Labrador to Florida, never far inland or away from the salt water; it is very shy and vigilant; it goes north in the spring to breed, returning in October; the nest is made without care on the shingly beach in the scanty herbage above high water mark, in the sand or in the marshes; the eggs are 4, 2¼ by 1½ inches, pale cream-colored, with spots of brownish black and paler tints; the cry is loud, like the syllables "wheep, wheep, wheep;" the flesh is dark and tough, and not fit for food. A rather smaller and darker species (*H. niger*, Pallas) is found on the Pacific coast of America and N. E. Asia; the *H. ater* (Vieill.), from the west coast of South America, is 18 inches long, with brownish black plumage and bright red legs. The pied oyster catcher or sea pie (*H. ostralegus*, Linn.) of Europe much resembles the American bird, but is smaller, and has the bill less deep at the bulging part, less sharp-pointed, and proportionally shorter; it has similar habits, and may be readily domesticated, forming a handsome addition to the park or poultry yard.

OYSTER GREEN (*ulva latissima*, Linn.), a marine, annual plant of the class known as thallogens, having no distinct sexes and no separation of stems and leaves. It consists of an oblong, roundish, wavy, rich dark green, leaf-like expansion called the frond, which is affixed to stones, rocks, and mud at the bottom of the sea. The frond varies much in shape, being sinuated or wavy or flat, often plaited; and likewise in size, from 6 inches to 2 feet in length, and from 3 to 12 inches in breadth. Its substance consists of two layers of cells, imbedded in which are myriads of minute green granules (spores), which answer for seeds, arranged in fours over the whole frond. It is common on the American coast. The oyster green in Europe is served at table with lemon juice, and as a diet is esteemed good for scrofulous habits. Lightfoot in his *Flora Scotica* says that in the Shetland islands anodyne virtues are attributed to it, and that it is bound about the forehead and temples to assuage headache and to procure sleep. In America no use is made of it of which we are aware.

OYSTER PLANT, or SALSIFY, a species of *tragopogon*, with smooth lance-linear leaves and heads of rather showy flowers, a native of Europe and cultivated in gardens as an esculent (*T. porrifolium*, Linn.). It has a stem 3 to 4 feet high, slightly forked branches, leaves 6 to 15 inches long, ovately dilated at base, and tapering upward to a point; the back of the leaf is also keeled; heads of flowers terminal on enlarged, hollow, club-shaped peduncles, the florets of a violet purple, and the achenia (seeds) about an inch long, lance-oblong, striate-furrowed, roughish, ending in a smooth, slender beak crowned with a tuft of bristles (*pappus*); the flowers appear in June and July. The root is fleshy and spindle-shaped, and when properly cooked possesses the flavor of fried oysters. A good, deep, mellow soil is needed for the cultivation of the oyster plant, as the roots extend down far into the ground; the beds should be in an open situation, and the seeds sown in shallow drills, which are made 6 inches apart and covered about half an inch, raking the beds smoothly over afterward. On coming up, if the plants are too thick they should be thinned occasionally, allowing the rest to remain where they were sown. In the autumn, when the roots are dug, let them be exposed to the air for a few hours, and then pack them separately in dry sand, whence they may be taken for use during the winter.

OZARK, a S. co. of Mo., bordering on Arkansas, intersected by the North fork of White river, and watered by other branches of the same stream; area, about 1,550 sq. m.; pop. in 1856, 4,185, of whom 33 were slaves. Its surface is hilly and covered with large forests of pine, and the soil in the valleys and bordering streams is fertile. The productions in 1850 were 115,670 bushels of Indian corn, 5,090 of wheat, 6,280 of oats, 4,218 lbs. of wool, and 28,958 of butter. Capital, Rockbridge.

OZAUKEE, a S. E. co. of Wis., bordering on Lake Michigan, and drained by Milwaukee river and Cedar creek; area, 288 sq. m.; pop. in 1855, 12,978. It has a rolling and heavily timbered surface and fertile soil. It was formed out of Washington co. in 1853. Capital, Ozaukee.

OZONE (Gr. οζω, to smell), a gaseous substance of questionable composition, first observed by Schönbein, and by him and other chemists supposed to be an allotropic modification of oxygen. It is produced when a succession of electric sparks is passed through atmospheric air or through dry oxygen, and again by the slow oxidation of phosphorus in a closed vial. A portion of the oxygen undergoes a change, the effect of which is perceived in a peculiar smell somewhat like that of chlorine. This altered portion of gas possesses more powerful oxidating properties than oxygen itself. Its presence is detected by its property of liberating iodine from its combination with the metals; a slip of paper moistened with starch and iodide of potassium, exposed to the air of a vessel containing the slightest admixture of ozone, immediately becomes blue from the liberated iodine meeting the starch. Ozone loses its active properties by exposure to heat a little above the boiling point. Some chemists have supposed that ozone is the peroxide of hydrogen, HO_3. The subject of ozone has been thoroughly reviewed in the work of H. Scoutetten, physician in chief of the hospital at Metz, entitled *L'ozone, ou recherches chimiques, météorologiques, physiologiques et médicales sur l'oxygène électrisé* (1857).

P

P, the 16th letter and the 12th consonant of the English alphabet. It is the leading or most prominent of the labial mutes, and is pronounced by closely compressing the lips until the breath is collected and then letting it issue. It has been supposed that the shape of P was originally designed to represent the position of the mouth viewed in profile when uttering it, but the resemblance is not very obvious, and would certainly not apply to the Greek Π (*pi*). More probably it is merely a corruption of Π, which appears from old inscriptions to have been originally written Γ, or with one arm shorter than the other. The Greek form of Π has been preserved in the Russian and Gothic alphabets. P is frequently interchanged with B, and in English words of Teutonic origin corresponds as a rule to B in the root. The exceptions to this rule are very numerous, however, as Eng. *sleep*, Anglo-Saxon *slapan*, Mœso-Gothic *slepan;* and on the other hand, when P occurs in words of Greek or Latin derivation, it is found to be the same in the original language; thus, Eng. *paternal*, Lat. *pater*, Gr. *πατηρ*. The dialects of upper Germany frequently pronounce B as P, and those of lower Germany make the contrary change. In Spanish the two letters are constantly confounded. In Runic writings the character representing the sound of P is almost identical with our B. The pure sound of P is found in none of the Semitic languages except the Ethiopian, its representative in Hebrew and Syriac being believed to partake more of the *ph* or *f*. It is common in Chinese, but wanting in Japanese. Beside *b* and *f*, this letter is also interchangeable with *m*, *v*, *pf*, *c*, *k*, *q*, *t*, and *pt*. Followed by *h*, it is equivalent to the Greek *phi* (φ), and pronounced *f*, as in *physic*. In some words borrowed from the Greek, as *psalm*, it is silent.—As an abbreviation in Latin inscriptions, P. stands for *Publius*, *proconsul*, *pontifex*, *pius*, *perpetuus*, *patronus*, *pedes*, *pondo*, *posuit*, *ponendum*, *post*, &c. P.P. signifies *pater patriæ*, *pro prætore*, *præpositus*, *primipilus;* P.C., *patres conscripti*. In numismatics, it is the mark of ancient coins struck at Dijon. The numerical value of P among the ancients has been variously explained. As the initial letter of *πεντε* it seems at first among the Greeks to have indicated 5; afterward it denoted 80. Among the Romans, according to Baronius, it stood for 7; but according to Uguccio it was equivalent to C, 100, and according to others to G, 400, or with a horizontal mark over it to 4,000, 40,000, or 400,000.

PACA, a rodent of the agouti family, the only well determined species of the genus *cœlogenys* (Ill.). In this genus the zygomatic arch is enormously developed, the superior maxillary portion presenting a large hollow beneath, giving to the skull somewhat the appearance of that of a snapping turtle; the outside of the arch in the male is wrinkled and roughened with small wart-like confluent excrescences, growing rougher with age; the malar bone is deeper than long; the molars are longer than broad, the crowns having 4 or 5 deeply indenting folds of enamel, and the incisors are slender. The *C. paca* (Rengg.) is about 2 feet long, stout-bodied, with short limbs; the head is large and broad, with an obtuse hairy muzzle; the eyes large; the ears moderate and sparingly clothed with hair; feet naked below, 5-toed, the inner very small, and with broad nails except on the inner; the tail a naked fleshy tubercle. The hair is coarse, closely applied to the skin, of a brown color on the upper parts and limbs, and white below; 3, 4, or 5 longitudinal white bands on the sides, more or less broken up into spots; in some specimens the color is blackish brown above and yellowish white below, and in others more rufous. The mammæ are 2 pairs, one pectoral, the other inguinal. The zygomatic cavity is lined by a continuation of the skin of the face, and opens externally on the cheek; its use is not well ascertained; beneath this is a cheek pouch, opening into the mouth in front of the molars. They inhabit South America from Cayenne to Paraguay, and are sometimes found in Peru east of the Andes, and in some of the West Indian islands. They are generally seen singly or in pairs on the borders of the forests and rivers after sunset, remaining concealed during the day in burrows which they dig like rabbits; the food consists of leaves, fruits, and tender plants, and sometimes sugar cane and melons; they are lively in their movements, and are good runners, swimmers, and divers, cleanly in habit, the flesh is fat and well flavored. A species is found fossil in the caves of Brazil.

PACA, William, a signer of the American declaration of independence, born in Harford co., Md., Oct. 31, 1740, died in 1799. He was graduated at the college of Philadelphia in 1759, studied law at Annapolis, was admitted to the bar in 1764, and in 1771 was chosen a member of the provincial legislature. In this position he signalized himself by his opposition to the government, and was elected to the first and second continental congresses. The Maryland convention at first instructed him not to consent to the separation of the colonies from the mother country, but this restriction was taken off in June, 1776. On the adoption of the constitution of his native state he was made senator for two years. In 1778 he was appointed chief judge of the superior court of Maryland, which office he held until 1780, when he became chief judge of the court of appeals in prize and admiralty cases. In 1782 he was elected governor of Maryland. In 1786 he sat in congress for a short time, and in the same year was reëlected governor. He served in the state convention that ratified the federal constitution, and in 1789 was appointed judge of the district court of the United States for Maryland, which position he held till his death.

PACHA. See Pasha.

PACHACAMAC, Ruins of, the remains of an ancient Peruvian city, covering a large area, situated 7 leagues from the city of Lima, near the modern town of Lurin. It was the sacred city of the supreme divinity of Peru, Pachacamac, and was distinguished for a magnificent temple dedicated to him. Its door was richly incrusted with corals and precious stones. The golden keys of this temple were given by Pizarro to the pilot Quintero, and were valued at 4,000 marks.

PACHECO, Francisco, a Spanish painter and author, born in Seville in 1571, died in that city in 1654. Until the age of 40 he resided chiefly in Seville, and his reputation as a painter was purely local. Visiting Madrid and the Escurial in 1611, he conceived such enlarged ideas of art from the masterpieces of Titian and other great Italian painters, that upon his return to his native city he opened there an academy of painting on a more comprehensive scale than had previously been attempted in Spain; in this school, among other pupils, were educated Alonzo Cano and Velasquez, the latter of whom married the daughter of Pacheco. In 1618 he was appointed by the inquisition censor of the pictures exposed for sale in Seville, his chief duty being to see that none representing the nude human figure were sold. He made a second visit to Madrid in 1623, and among other works dressed, gilded, and painted for the duchess of Olivares a wooden statue of the Virgin by Juan Gomez de Mora; an employment which he seems to have included among his regular professional labors, from the fact that he wrote an essay on the subject, and at various times of his life colored and gilded statues. He passed his latter years in Seville, where his residence became the resort of men eminent in literature and art, and particularly of the Jesuits of that city, to whom he was indebted for copious materials and hints for the preparation of his *Arte de pintura* (4to., 1649), a work considered indispensable to the student of Spanish art. His paintings are rarely met with out of Spain. He executed several hundred portraits in crayon, including that of Cervantes.

PACHECO, Joaquin Francisco, a Spanish author, journalist, and statesman, born in Ecija, in the province of Seville, Feb. 22, 1808. He was called to the bar in 1833, and establishing himself in Madrid, became connected with a variety of journals, including the *Boletin de jurisprudencia y legislacion*, founded by himself in connection with Gerez Hernandez and Bravo-Murillo, and of which 4 volumes were published between 1835 and 1839. For a number of years subsequent to 1836 he was a member of the cortes, and in 1847 he held for a short time the position of prime minister. In 1851 he upheld the constitutional cause against Sartorius, and in 1854 he reëntered the ministry. In 1855 he was sent to Rome as ambassador, and in the succeeding year visited England in the same capacity, but was recalled upon the return of Narvaez to power. In 1860 he was sent as ambassador to Mexico, but received his passports from the Juarez government in Jan., 1861 after it had taken possession of that city. He is the author of two dramas, *Alfredo* and *Las infantes de Lara*, of a volume of poems, a "History of the Cortes of 1837," "Lectures on Penal Law," and a "History of the Regency of Maria Christina."

PACHOMIUS, Saint, the founder of the first organized monastic community, born in upper Egypt in 292, died in 348. He was by birth a pagan, but about the age of 20, while serving in the army, became a convert to Christianity. As soon as his term of military service was expired he placed himself under the direction of a hermit of the Thebaid named Palæmon, and afterward (340) retired to the island of Tabenna, where he founded a monastery. His disciples soon became numerous. They occupied different houses, each of which had its superior, and several houses combined formed a monastery which was ruled by an abbot. The whole body of monks, amounting at times to as many as 7,000, recognized a common superior, with whom they assembled regularly at Easter, beside meeting on Sundays in the oratory belonging to all the establishments. On the opposite bank of the Nile there was a convent for women founded by the sister of Pachomius, and governed by the same rules as those for the men. The rules of Pachomius were translated into Latin by St. Jerome, and are still extant. Several of his letters have also been preserved, and both may be found in Galland's *Bibliotheca Patrum* (1768).

PACHYDERMATA (Gr. παχυς, thick, and δερμα, skin), a group of herbivorous mammals, generally of large size and unwieldy appearance, with a thick skin, naked or sparingly covered with hair. Among its living members are the elephant, hippopotamus, rhinoceros, manatee, tapir, hog, and peccary, and among the extinct genera the mastodon, dinotherium, palæotherium, lophiodon, macrauchenia, and toxodon; the manatee forms the connecting link with the cetaceans, an affinity commenced in the wallowing hog and tapir, and continued in the almost aquatic dinotherium and hippopotamus; they are allied to ruminants by the fossil anoplotherium, and to rodents by the hyrax, while the hiatus between the rhinoceros, tapir, and elephant was filled by the extinct lophiodon, macrauchenia, palæotherium, and their allied genera.

In the present epoch the genera and species are few, but during the tertiary period they existed under a far greater variety of form; it is probable that through climatal changes and human agency the elephant and the hippopotamus will in a few centuries be exterminated like the dinotherium and the mastodon. In the system of Cuvier the pachyderms included all non-ruminating hoofed quadrupeds, divided into *proboscidia* (elephants), *solidungula* (horse, &c.), and ordinary pachyderms subdivided according to the odd or even number of the hoofs. Wagner makes sections: I., *anisodactyla*, with hoofs in a single series around the bottom of the foot, and with skin usually naked, including the 4 families of elephant, tapir, hippopotamus, and rhinoceros; II., *sygodactyla*, with two hoofed toes for walking and two others placed higher up, including the hog family; and III., *lamnungia*, with flattened nails instead of hoofs, including the hyrax family. According to Owen's cerebral system (see Mammalia), the pachyderms would comprise all the hoofed quadrupeds except the ruminants and solidungulates, with the addition of the sirenoid *mutilata*. Van der Hoeven combines the systems of Cuvier and Owen, as follows: order *pachydermata*, with phalanx I., *proboscidia*, with the elephant family; II., *perissodactyla*, with an odd number of toes, with the families *nasicornia* (rhinoceros), *lamnungia* (hyrax), *tapirina*, and *solidungula;* and III., *artiodactyla*, with even toes, including the hog and hippopotamus families. The skeleton is generally massive, indicating great strength but inactive habits; the thoracic cavity is enormous, in proportion to the great bulk and weight of the viscera; the limbs are robust, though adapted for running in the smaller members like the hog; there are no clavicles; the peculiarities of the skeleton and teeth are given in the articles devoted to the different animals. The stomach is generally simple, and the intestines very long and voluminous, in accordance with the bulky and vegetable character of their food; the brain is well developed, and the complexity of the convolutions ranks them with the sub-class *gyrencephala* of Owen, but, with the exception of the hog, below the ruminants and carnivora; the nasal apparatus is richly endowed with nerves, forming a delicate organ of touch, and in some of prehension. They occur in the warmer climates of all parts of the world, except Australia, both in the present and former epochs.

PACIFIC OCEAN, one of the five great basins into which geographers have divided the waters surrounding the continents. It is the greatest in extent, the latest known, and the most interesting in its physical features. Between long. 70° W. and 110° E., that is, for the space of 180°, or over one entire half of the globe, it covers the greater part of the earth's surface, from Behring's straits to the polar circle that separates it from the Antarctic ocean. If we except China and the N. E. coast of Asia, not only was this sea itself unknown before the time of Columbus, but the countries that bound it, including the vast coast line of North and South America on the E., and the Philippines, New Guinea, Australia, and Tasmania (Van Diemen's Land) on the W., was unvisited by Europeans. Humboldt speaks of its discovery as the most important cosmical occurrence, after the rediscovery of the American continent and the knowledge of its extension in the direction of the meridian from Hudson's bay to Cape Horn. Writers on physical geography have observed that the Pacific ocean presents, in the forms of the shores which bound it, some remarkable traits of resemblance to the Atlantic ocean. The W. coast of South America, says Romme, projects much like the W. coast of Africa S. of the equator. The gulf of Panama and the coast of Mexico have formations which offer some similitude with those of the gulf of Guinea and the promontory of Africa; the Caribbean sea, which runs up into the E. coast of Mexico, seems to correspond to the gulf which is contained between the N. coast of New Holland and the coasts of China, that gulf in which lie the Moluccas, the Philippine islands, &c. Nevertheless, the two oceans, in their other divisions, whether N. or S. of the line, differ much in their shores. The most obvious division of the Pacific ocean is that made by the equatorial circle into north and south; but in order to facilitate our brief study of this sea, we shall follow the example of Kerhallet and separate these two simple divisions by interposing a third, the equatorial Pacific ocean, which will embrace all the space comprised between the tropics of Capricorn and Cancer.—Discovery and Early Navigation. The Spaniard Balboa obtained the first sight of the South sea from the summit of the Sierra de Quarequa, on the isthmus of Panama, Sept. 29, 1513. Columbus, in sailing along the coast of Veragua, had already received distinct accounts of a sea to the westward of that land, "which would conduct in less than 9 days' voyage to the Chersonesus Aurea of Ptolemy, and to the mouth of the Ganges." ("Cosmos.") Balboa, after

> . . . . . with eagle eyes
> He stared at the Pacific, and all his men
> Looked at each other with a wild surmise,
> Silent, upon a peak in Darien,

rushed to the shore, and, drawing his sword, waded into the water, and took possession of the ocean before him in the name of the government of Castile. Immediately after he had announced his discovery to his sovereign, orders were issued by the Spanish government to navigate its eastern coasts in that vicinity, with a special view to the discovery of an opening between the Atlantic and Pacific oceans. Prominent among those who were engaged in this service was the celebrated navigator Juan Diaz de Solis. Although the Pacific ocean was discovered by the Spaniards, who navigated a limited portion of its American coast, it was first traversed by the famous Portuguese navigator Magalhaens, 8 years after its discovery. It is a circumstance that seems now almost incredible that he should have crossed from America to Asia, and sailed over the whole ocean, a distance of 10,000 miles, without falling in with any other lands than two small uninhabited islands, until he discovered first the Ladrones, and afterward that very important and thickly inhabited group, the Western isles, or the archipelago of Saint Lazarus; a name which the Spanish historian Martinez de Zuñiga tells us was changed to the Philippine islands, by Ruy Lopez de Villalobos, in compliment to Philip II. After the murder of Magalhaens in the island of Mactan, Juan Sebastian Cano completed the first circumnavigation of the globe, in the ship appropriately named Victoria, and received for his armorial bearings a terrestrial globe with the inscription: *Primus circumdedisti me.* Balboa found the pacific reputation of the central part of this ocean fully established among the natives of Veragua and the isthmus, but the name was first given to it by Magalhaens; and the name seems by no means unnatural to one who has passed from the stormy regions of Terra del Fuego into the mild and genial climate of that part of the Pacific. Magalhaens could only have referred to the tropical portion, for in the first part of his navigation from the strait he experienced much stormy weather; the latitude of 32° 20′ S. was observed Dec. 18, 21 days after leaving Cape Deseado. The term South sea has also been applied to this ocean, but neither of these names is more applicable or less absurd than the other. Malte-Brun, Kerhallet, and other writers have proposed to substitute for these the appropriate title of the Great ocean; but that of Pacific is now so firmly established and universally employed, that it is not likely to be supplanted. The error of Ptolemy with regard to the size of the old continent prevailed up to the epoch of which we are writing. It was generally believed that it occupied an extent of 180° of longitude, and spread over one half of the globe. Columbus, laboring under this transmitted misapprehension, enlarged this extent to 240°, actually filling up the North Pacific ocean with the continent of Asia, the E. coast of which was brought forward, in his conclusion, as far as the meridian of San Diego. The famous physician and astronomer, Paul Toscanelli, in his correspondence with Columbus, went even further than this, and reduced the distance by sea from the E. to the W. coast of the old world to 52° of longitude only. But the discoveries of Balboa, Magalhaens, and their successors, rapidly dispelled these erroneous notions concerning the divisions of the earth's surface, and introduced more correct, though still far from exact, ideas of the relative proportions of land and water. From that period to the present day, the Pacific ocean has presented a rich field for the labors and enterprise of navigators and discoverers. The progress of discovery in the south, however, was slow. The minds of men were for a long time persuaded of the existence of a *terra incognita*, or a *terra nondum cognita*, of immense extent. The magnificent promises of Quiros, in his memorial to the king of Spain (1612), embraced the discovery of an "unknown country, the fifth part of the terrestrial globe, which extendeth itself to such length, that in probability it is twice greater in kingdoms and seignories than all that which at this day doth acknowledge subjection and obedience to your majesty, and which," he adds, "must by proportion and analogy prove some terrestrial paradise." He challenges the investigation of mathematicians, offering to prove to them the existence of the continent, and calls it the world of which Spain is the centre. During the century and a half subsequent to the unsuccessful voyages of this enthusiastic navigator, the notion was steadily maintained that a continent existed somewhere in the southern seas. It was encouraged from time to time by the reports of successive navigators and the arguments of learned writers. Of the former, contradicted or corrected as they have been by the thorough examination of English navigators, it is unnecessary to speak. It is worthy of remark, however, that this portion of the history of navigation is an interesting exhibition of the progressive steps by which a knowledge of the earth's surface has been acquired, and forms a proper introduction to the voyages of Cook, whose genius, remarkably national in its traits, entitles him to the second place after Columbus as a bold and successful discoverer. The arguments of learned writers, to which we have referred, may be found in the appendix of Dr. Heylin's "Cosmographie in foure Books," &c. (1677); *Histoire des navigations aux terres australes*, by Charles de Brosses (1756); the preliminary discourse of M. de Bougainville (*Voyage autour du monde*, 1771); "An Account of the Discoveries made in the South Pacific Ocean previous to 1764," part 1; "Investigations, &c., of Mr. Alexander Dalrymple;" and in the *Lettre sur les progrès des sciences* of Maupertuis (Berlin, 1752). Maupertuis suggests that the similarity in animal, vegetable, and mineral productions of the known world may be accounted for by the neighborhood or contiguity of the continents; but as the supposed southern continent is distinctly separated from the others, "the discovery of these countries would probably present great advantages to commerce, and wonderful novelties in the physical world." We cannot forbear adding another sentence from this letter, displaying the credulity of the times, and the zeal of the writer: "It is in the islands of this sea that navigators assure us that they have seen savages, hairy or shaggy men, with tails, a species somewhere between us and monkeys. I would rather have an hour's conversation with them than with the finest wit in Europe." Buache in 1754 published an atlas in which two continents were delineated, and he gravely assures the student that it will be found upon better acquaintance that one of them has a range of mountains extending along the coast similar to the Cordilleras of South America. His only authority for these continents was some small portions of New Zealand, and some islands the very existence of which was doubtful. The remainder was filled up by the pen guided by his imagination. The main argument of these writers is deduced from a consideration of the weight of land compared with that of water, from which it was concluded "that a continent is wanting on the south side of the equator, to counterpoise the land on the north, and to maintain the equilibrium necessary to the earth's motion." It is unnecessary to say that this reasoning attaches too much consequence to the inequalities upon the earth's surface, which in their proportion to the whole mass have no claim to such grave consideration. This is true of the ocean probably, as well as of the land. Laplace concludes, from a variety of reasons, that the depth of the sea is not very great anywhere, not materially surpassing the height of mountains on land; and as mountains and valleys form the surfaces of continents, the bottoms of the ocean are marked with the same irregularities. Further, although geometers have shown that the earth's centre of gravity, or centre of rotation, is nearly correspondent to its centre of figure, yet a slight defect in this correspondence may perhaps account for some of the lunar perturbations whose cause is now unknown. "Astronomically speaking," says Sir John Herschel, "the fact of the divisibility of the globe into an oceanic and a terrestrial hemisphere is important, as demonstrative of a want of absolute equality in the density of the solid material of the two hemispheres;" and he adds that this fact should not be neglected in any future investigation, which may attempt to explain the local deviations of the intensity of gravity from what is required by the hypothesis of an exact elliptic figure. This problem was not completely solved until the time of Cook, or we might say until the recent voyage of the younger Ross. Even up to a period so late that we may speak of it as our own day, various remote parts of the Pacific have rewarded the bold and patient navigator with new discoveries. And now a great deal still remains to be done to render its navigation secure, more particularly where new channels of commerce have been opened by the settlement of the N. W. coast of America and the continent of Australia. It may be thought that we have dwelt longer upon this part of our subject than its importance merits, but we are desirous of preserving, and of laying before the reader, these curious illustrations of a period when, as Humboldt says, "men's heads were dizzy with strenuous efforts, heroic achievements, deeds of violence, and discoveries by sea and land." At the beginning of this period, "it was not only a hemisphere, but almost two thirds of the surface of the globe which was then still an unknown and unexplored world; as unseen as that half of the moon's disk which the laws of gravitation withdraw for ever from the view of the inhabitants of the earth."—COASTS AND ISLANDS. The coasts which bound the Pacific ocean on the east and west are singularly contrasted with each other. That of America is in general a bold shore, on which the deep water advances near the land, while precipitous mountains overhang the borders of the sea. The eastern boundary of Patagonia presents a surface broken by innumerable islands, and filled with sounds and bays; but from the N. extremity of the island of Chiloe, on the parallel of 42° S., there are but few deep and sheltered bays, while the general character of the coast is such as we have above described. To the N. and W. of Panama we find the gulfs of Nicoya and Fonseca, and still more the gulf of California, presenting exceptions to our general description; but it is not till we have arrived at Puget sound, the neighborhood of Vancouver's island and the British territory, that the broken and indented forms of the Patagonian coast are renewed. On the coast of Asia, from the peninsula of Kamtchatka and the sea of Okhotsk to the continent of Australia, the coast line is so much broken up by seas and straits, by islands innumerable, varying in size, shape, and outline of shore, collected into groups and standing singly, that it is impossible to offer a description that will be applicable to any considerable portion of it. Here the navigator finds his path tortuous and intricate, but not so dangerous as might at first appear; for as this is the part of the world toward which during the last three centuries the commerce of the western nations of Europe has directed its energies, the charts and other means of navigation have been correspondingly improved. The Pacific ocean is distinguished by various groups of islands, occupying its central and eastern divisions, which are included under the general name of Polynesia. (See POLYNESIA.) The most important groups excluded from this classification are those of the Aleutian or Fox islands, and New Zealand.—WINDS. In speaking of the winds of the Pacific ocean, we shall take up first the central, intertropical, or equatorial division. Until a recent period it was supposed that the trade winds prevailed throughout this whole belt, with no other changes than those peculiar to themselves—the modifications, that is, due to the change of seasons. But numerous and accurate observations have established the fact that the trade winds blow constantly over less than one half of this belt. The S. E. trades are found all the year round only between the longitude of the Galapagos islands and that of the Marquesas islands; and the N. E. trades only between the meridian of 115° W. and the Mariana or Ladrone islands. The numerous groups of islands lying between the Marquesas group and Australia are visited by periodical winds, which have more nearly the character of monsoons than trade winds; and the same may be said of the corresponding part of the ocean in the northern hemisphere. In the latter, the trade wind prevails only from the month of October till the month of May; in the former from March till October; during the rest of the year the wind changes to the west, and is accompanied with squalls and rains. The polar and equatorial limits of the trade winds are variable on both sides of the equator, the variation depending upon the sun's declination. Between these limits is a belt of variable winds, which is narrower in the winter than in the summer of the northern hemisphere. The average breadth of this belt is 5°, and it is contained between the parallels of 8° and 3° N.; sometimes, however, it disappears entirely, and the N. E. and S. E. trade winds are not separated from each other even by calms. In the month of May La Pérouse left the S. E. trades in lat. 5° 49′ N., and took the N. E. trades in lat. 6° 10′ N.; in the month of April the French frigate La Poursuivante, going from Tahiti to the Sandwich islands, crossed the line in long. 141° 40′ W., and passed, without having any calms, from the S. E. winds to the N. E. in lat. 8° N.; and again in the month of July, the ship Alabama, going from San Francisco to Tahiti, and crossing the line in long. 127° 40′ W., left the N. E. winds in lat. 7° 41′ N., and caught the S. E. in the same latitude. There are several other examples of the same fact in the months of June, April, and February, for vessels crossing the line between the meridians of 144° and 155° W. Kerhallet, in his admirable memoir, gives a table showing according to the month the limit of the trade winds, and the breadth of the zone of the variable winds of the equator, compiled from the voyages of all the most celebrated navigators, from Cook to Fitzroy and Wilkes. When the sun is in the northern hemisphere, the N. E. trade winds vary from E. to E. N. E., and are frequently squally, with rain; on the contrary, when the sun is in the southern hemisphere, the trade winds take a more northerly direction, varying from E. N. E. to N. N. E.; these winds are less steady than the S. E. trade winds, and are more subject to calms and squalls. The periodical winds peculiar to the equatorial zone have been called by Krusenstern, Romme, and others, monsoons; but they do not, in fact, like the monsoons of the Indian ocean, blow from opposite points of the compass, neither are they equally regular in their recurrence. W. and S. W. monsoons are met with in all the archipelagos of the South Pacific ocean, from those of Nukahiva and Pomotou to the Solomon islands and New Guinea. In precisely this same region, between the months of November and April, hurricanes are experienced, especially in the vicinity of the New Hebrides and New Caledonia. But the hurricanes of the Pacific ocean are not so much to be dreaded as those of the Indian and Atlantic oceans; they occur more frequently near the islands than in the open sea; and intervals of several years often pass without their being felt. These hurricanes, like those of the Indian ocean, are revolving storms, obeying a general motion of translation in a parabolic curve, of which the summit is tangent to the meridian in about lat. 26°, and of which the branches open toward the east. North of the equator, in this zone, the Ladrone islands are sometimes ravaged by hurricanes; and Capt. Hunter, of the ship Japan, in 1832 encountered one of these storms in lat. 13° N., and as far E. as the meridian of the Sandwich islands. Our other two divisions of this ocean, the North and South, comprehend the temperate zones of the two hemispheres; and it may be said in general of both of them, that the winds blow from all directions in all seasons of the year. But the westerly are the prevailing winds, blowing with more or less violence, and verging toward the pole in the winter, and the equator in the summer, of their respective climates. In the vicinity of Cape Horn the W. winds prevail during the greater part of the year; the same is true also of the coasts of Patagonia and Terra del Fuego. In the bay of Panama the winds vary from E. to N., from September to March; during the rest of the year they blow from S. to S. S. W. From the W. extremity of the bay of Panama to lat. 30° N., that is, along the coasts of Central America, Mexico, and Lower California, we meet again with periodical winds, to which the name of monsoons has been given, and which are disturbed by tornadoes, sudden gusts, or violent winds, known under the names of *vendavales*, *tapayaguas*, *papagayos*, *tehuantepec*, and *cordonazos*. In the months of February and March, between the parallels of 13° and 15°, prolonged calms take place, which may be compared to those of the gulf of Guinea; they have been known to last 30 days, at a distance of more than a degree from the coast. From San Francisco to Vancouver's island, the prevailing winds are north-westerly, particularly in the months of June, September, and October. At New Archangel, situated in lat. 57° 3′ N., it is E. winds, according to Krusenstern and Hagemeister, that bring the rain and snow of winter. Leaving the N. W. coast of America, and entering the water space bounded E. by this coast, W. by Kamtchatka, N. by Behring's straits, and S. by the Aleutian archipelago, we find, according to Lütke, that the winds are very variable, those from the S. and S. W. predominating. On the immediate coast of the Russian peninsula the W. winds prevail during the winter, and the E. during the summer. Cook, who remained in this vicinity from May to November, confirms this statement. The sea of Okhotsk possesses, as might be expected, a climate peculiar to itself. The E. winds are almost constant in this sea, the occurrence of W. winds being rare. Two regular monsoons of unequal duration divide the year on the coast of Tartary, in the islands of Japan, and on the N. coast of China. In the belt occupied by these monsoons the rainy season is the period of the S. W. monsoon for all the coasts having a westward exposure, and of the N. E. monsoon for those looking E., the reverse being the case for the dry seasons. But the most characteristic meteorological feature of this region is that frightful rotatory tempest, the typhoon, which may occur at all seasons, and is felt as far E. as the vicinity of the Ladrone islands. These hurricanes, which carry terror to the seaman, are usually announced by several indications, the most certain of which is the falling of the mercury in the barometer. The monsoons in the Philippine islands are subject to nearly the same laws as those of the China sea, changing, however, with less regularity. Around the island of Luzon are experienced, between July and September, storms peculiar to this climate, called *tempestades* by the Spaniards, and *vaguios* by the Indians, the precursory signs of which are given by Legentil. On the E. coast of Australia, S. of the tropic, and Tasmania, the N. W. winds reign between the months of October and April, but during the remainder of the year the S. E. winds are very frequent. Finally, the seaman is not exempt from the so called white squalls, which give no warning of their approach. They are most common between the tropics. Near the land, and particularly close to mountainous and elevated regions, they resemble whirlwinds, and electricity seems to play an important part in their origination, as it does in that of the water spouts frequently encountered in the Pacific ocean among the archipelagos, and on the coasts of China and Japan.—CURRENTS. Capt. Duperrey, in his chart of the motions of the waters in the great southern ocean, took the first step toward a collation of the scattered observations of navigators on the currents of the Pacific. Berghaus extended and generalized this work, which Johnston has brought as near to completion as the existing state of our knowledge admits. Without stopping to discuss the origin and causes of these currents—the effects of changes in specific gravity and temperature, of the diurnal motion of the earth, of the forms and positions of the continents—concerning which philosophers are still divided, we will proceed to give a brief description of the circulation which keeps in motion the waters of this vast domain of the sea, endeavoring to do it in a manner so simple that the reader will find no difficulty in tracing the directions upon a common atlas or globe. Dividing the ocean, for the consideration of this subject, into two parts by the equator, we shall commence with the currents of the South Pacific. Near the southern point of Tasmania, a current takes its origin from the combined influences of the warm current of the E. coast and the cold current of the S. coast of Australia, and from this point traverses the Pacific ocean, widening as it proceeds, until it approaches the W. coast of America, in the meridian of 98° W., where it divides itself into two principal branches. The northern branch continues its easterly course, inclining to the north, till it reaches the meridian of 78°, where, turning suddenly to the north, it takes the name of the current of Mentor, which it retains until it is lost in the equatorial current. The other, or southern branch, the largest in extent and the lowest in temperature, undergoes a further subdivision, one part running along the W. coast of America to the north, where it is known as the cold current of the coast of Peru, or Humboldt's current; the other part, turning toward the south, and washing that portion of the American coast, forms the cold current of Cape Horn, and doubling that cape, penetrates into the Atlantic. The temperature of the great cross current of the South Pacific varies with the latitude; in lat. 60° S. its temperature falls as low as 33° F., and even in lat. 35° it has not risen above twice this value, that is, 66°. The temperature of the current of Mentor rises as high as 77°, while the colder current of Humboldt has only obtained the temperature of 65° as far N. as the parallel of Lima. Very near the coasts of Chili and Peru, and following the sinuosities of the land, there is found a southerly current, which is in fact the counter current of Humboldt; it runs with a velocity varying from 3 to 12 m. a day. We shall give the velocities of the principal currents collectively in a table. The Pacific ocean, like the Atlantic, is traversed throughout its whole breadth by an equatorial current, which in the southern ocean is turned to the westward from the coast of Peru by the projection of the continent in the vicinity of Cape Blanco. In order to develop the leading features of this current satisfactorily, we will separate it into two branches—a separation which nature has already made by the equatorial counter current. The southern equatorial current makes itself first felt about the meridian of 88° W. Its limits are, on one side, N. of the tropic of Capricorn, and on the other S. of Pitcairn's island, and these limits are preserved till it reaches the archipelago of Tonga. In the neighborhood of this archipelago the hitherto united waters branch off in several directions. One stream, to which the name of Rossel's current has been given, pursues its W. course steadily through the labyrinth of islands until it reaches New Guinea and Torres strait, retaining its high temperature of 78°. Another branch descends along the E. coast of Australia as far as Tasmania; it is known as the warm current of the E. coast of Australia, is one of the sources of the cross current of the Pacific ocean, and brings us back, the reader will observe, to the point from which we started. The high temperature of this current, which near the land exceeds 68° F., in the latitude of Port Jackson, constitutes a very important feature of the climate of New South Wales, as in the case of the Gulf stream and the outhern Atlantic states.—The northern equa-orial current begins to be felt about the me-idian of 128° W., and on the parallel of 24° N., a limit which it maintains even up to he island of Loo Choo, in the meridian of 127° E., notwithstanding that it makes a deep bend o the southward, W. of the Sandwich islands. The temperature of this current varies from 74° on its northern limit to 88° on its southern; he mean temperature may be set down at 81°. This equatorial current of the north is separated rom that of the south, particularly between he meridians of 115° and 150° W., by an equa-orial counter current running to the east, and ontained between the parallels of 5° and 10° N. The counter current is sometimes found urther E. than laid down by Johnston. The Bonite, in 1836, encountered it in long. 100° W., and M. Darondeau has assigned to it a naximum velocity of 34 m. in 24 hours. The acts with regard to this counter current are ot, it must be admitted, well ascertained; dif-erent limits have been assigned it by differ-nt navigators, and much remains to be done to nake it as useful as it might be to seamen. Another easterly current has been discovered W. of the Sandwich islands, and in their lati-ude, which Johnston has called the "entangle-nent of the easterly current." Its existence s established beyond a doubt by the observa-ions of Freycinet, Beechey, and Lütke. Still mother curious perturbation of the equatorial urrent occurs in that immense series of creta-eous groups known by the general name of he Caroline islands; it is distinguished as the nonsoon current, because it owes its existence o the alternate trade winds and monsoons of he China sea, from which it derives a cor-esponding change of direction. We have lready spoken of two of the offshoots of the reat equatorial current, the Rossel and the varm current of Australia; we are now to peak of a third, the current of the E. coast f Japan. The French call it after M. de Tes-an, who during the voyage of the Venus com-leted the observations upon temperature com-nenced by Krusenstern. The Japanese give it he name of *kuro-siwo*, or black stream, derived rom the dark color of its waters. Lieut. Silas Bent, U. S. N., read a paper on this stream before he American geographical and statistical socie-y, in Jan. 1856. He calls it a "river in the ocean, flowing to the northward and eastward long the coast of Asia, corresponding in every ssential point with the Gulf stream of the At-antic." After traversing the eastern shores f the empire of Japan, it separates into two ranches, one of which, continuing its north-asterly course toward Behring's straits, forms he current of Kamtchatka; the other, directed oward the east, preserves its original name ntil it finally disappears in the neighborhood f the N. W. coast of America, in about the neridian of 145° W. Near the tropic, where comes almost in contact with the northern quatorial current, it has a temperature of 77° or 78°, but in lat. 43° or 44° it sinks down to 55° or 56°. Its northern limit is marked, however, by a slight fall of temperature, which is afterward maintained as far as the Russian peninsula. Thus it appears that the waters which wash the Asiatic shores in this vicinity are comparatively warm; and this statement receives further confirmation from the fact that the sea never freezes in this region, notwithstanding the intense cold. This warmth is due to the current of Kamtchatka, which we have just seen is a branch of the Japan current. M. de Tessan found a temperature of 52° as high as Petropavlovsk; and Capt. Wilkes obtained 50° and 51° in lat. 60°, and even in Behring's straits, into which the waters of this current may be said to overflow. There is also a current descending in a S. and W. direction from Behring's straits, which spreads over the Aleutian islands, and runs through their channels and narrow straits with considerable velocity. In the E. part of the North Pacific ocean, between lat. 25° and 40° and long. 133° and 155°, occurs a singular phenomenon, to which Johnston has given the name of Fleurieu's whirlpool, because that hydrographer first pointed it out in his narrative of the voyage of Marchand. It has an E. and W. direction, and turns like the hands of a watch, the irregular circle which it describes being nearly of a radius of 240 m. Its existence is explained by the conflict between the waters on the southern limit of the Japan current, and those on the northern limit of the great equatorial stream. Along the N. W. coast of America, S. of Sitka, we meet with a cold current running S., and following the inflections of the land, with a mean breadth of 300 m. On the coast of Lower California the W. direction begins to be very marked; and at Cape San Lucas its course is W. S. W., when it is absorbed in the great equatorial current of the North Pacific. The temperature at Monterey is as low as 56°, but at Cape San Lucas it has reached 73°. This brings us back nearly to our starting point in the northern hemisphere. In order to complete our general study of the Pacific ocean, we must mention the periodical current of the W. coast of Mexico, which, occasioned by the monsoons of this coast, resembles them in its alternations. It extends from Cape Corrientes to the Cocos islands, preserving a nearly uniform breadth of 350 m. It was first noticed by Humboldt, and subsequently confirmed by Basil Hall and Beechey. The following table, taken from Kerhallet, exhibits the mean velocity of the currents of the Pacific ocean in 24 hours:

SOUTH PACIFIC OCEAN.

Southern equatorial current	24 miles.
Cross current	20 "
Current of Cape Horn	18 "
Humboldt's current	15 "
Current of Mentor	16 "
General current of Australia	12 "
Periodical currents of Australia	6 miles near the land. 16 miles at sea.

NORTH PACIFIC OCEAN.

Northern equatorial current	30	miles.
Equatorial counter current	15	"
Monsoon current of the Carolines	8	"
Japan current	31	"
Current of N. W. coast of America	16	"
Current of Kamtchatka	8	"
Behring's current	14	"

—Any one who has followed us in our description of the winds and currents, will readily understand how essential an accurate knowledge of them is, how much a voyage may be protracted or endangered through ignorance of them, and how frequently, by turning them to the best account, the navigator may exemplify in his own case the common saying, that the longest way round is sometimes the shortest way home. In general the navigation of the Pacific on its principal routes of commerce and transit has been rendered safe, convenient, and expeditious, by the zeal and ability of that long line of illustrious navigators who have identified their names with the physical history of this part of the globe. We annex a list of the most distinguished explorers and discoverers in this region: Frézier, 1718; Anson, 1740–'44; Bougainville, 1768; Cook, 1768–'79; Surville, 1769; Marion, 1772; La Pérouse, 1785; Mears, 1788; Marchand, 1791; D'Entrecasteaux, 1793; Butler, 1794; Carteret, Hunter, Vancouver, 1790–'95; Broughton, 1795; Hogan, 1796; Fearn, 1798; Baudin, 1800; Krusenstern, 1804; Golownin, 1811; Kotzebue, 1818; Freycinet, 1817; Duperrey, 1822; Bougainville, 1824; Lütke, 1825; Beechey, 1825; Dumont d'Urville, 1826; Downs and Reynolds, 1831; Vaillant, 1836; Du Petit-Thouars, 1837; Dumont d'Urville, 1837; Wilkes, 1838–'42.—See Romme, *Tableau des vents, des marées et des courants qui ont été observés sur toutes les mers du globe* (2 vols. 8vo., Paris, 1817); Krusenstern, *Recueil de mémoires hydrographiques pour servir d'analyse et d'explication à l'atlas de l'océan Pacifique* (St. Petersburg, 1824); Berghaus, *Physikalischer Atlas* (2 vols., Gotha, 1849–'52); Kerhallet, *Considérations générales sur l'océan Pacifique* (Paris, 1856); Alexander Keith Johnston, "Physical Atlas of Natural Phenomena" (new and enlarged edition, 1856); Fitzroy, "Narrative of the Surveying Voyages of His Majesty's Ships Adventure and Beagle, 1826, 1836" (London, 1839).

PACIFIC RAILROAD, a projected road to connect the Mississippi river with the Pacific ocean. It was first brought into public notice by Mr. Asa Whitney, who from 1846 to 1850 agitated the scheme in addresses to state legislatures and to popular meetings. He proposed to construct the road by the sale of the public lands along its line, and he asked from congress a free grant of alternate sections for a width of 30 miles on each side to be given to himself and his heirs and assigns for the purpose. His design was to commence at Prairie du Chien on the Mississippi, cross the Rocky mountains at the South pass, and fix the principal Pacific terminus on Vancouver's sound, with a branch from some convenient point west of the mountains to San Francisco. One of the great objects which Mr. Whitney proposed to accomplish by the enterprise was to render America the route of Asiatic commerce. The settlement of California, however, furnished a new reason for the building of the road, and the scheme was taken up by the government. Mr. Benton of Missouri for a long period advocated it zealously in the senate and before the people. The explorations of Capt. Fremont, by throwing light upon the physical geography of this great and nearly unexplored region, advanced the project. Finally, in March, 1853, congress made an appropriation of $150,000 to defray the expenses of the necessary surveys, and in that year six parties were organized and sent out by the war department. These parties were fitted out in the most complete manner, with a view to collect all possible information relative to the great physical characteristics of the region traversed, including its topography, its elevation above the sea, its climate, its geology, its botany and its natural history, as well as all details bearing upon the actual construction of the road. Excepting the more northern, the explorations were all in charge of officers of the corps of topographical engineers, U. S. A. The first expedition was led by Gov. Isaac I. Stevens, formerly of the army, on the line of the 47th and 49th parallels of N. latitude. It consisted of four separate parties. One, under Gov. Stevens's personal supervision, penetrated from St. Paul westward toward the mouth of White Earth river; thence by the prairies lying along the Missouri river to the Rocky mountains; and then among the passes of that region. Another, under Capt. McClellan, U. S. A., began at Fort Vancouver on the Columbia, explored to the north-eastward, examining the passes of the Cascade range, and then eastward to join Gov. Stevens. Another party, under Lieut. Donelson, U. S. A., examined the Missouri from its mouth to the Yellowstone, where a junction was made with that under Gov. Stevens. The fourth party, under Lieut. Saxton, U. S. A., conducted a reconnoissance from Fort Walla-Walla to the Bitter Root valley. The second expedition was on the line of the 38th and 39th parallels, and was commanded by Capt. Gunnison, U. S. A. It started from Westport, Mo., and followed the valleys of the Kansas and Arkansas rivers to the Rocky mountains. After carefully exploring the savage region between the Sangre del Cristo pass and Sevier lake, a portion of the party, including Capt. Gunnison, was massacred by Indians. The command devolved upon Lieut. Beckwith, who proceeded to Salt Lake City, where he received instructions to extend the exploration westward upon the line of the 41st parallel. This he did in the following spring, crossing the Sierra Nevada near Fort Reading, and thence following the valley of the Sacramento to San Francisco. The 3d expedition, commanded by Capt. Whipple, U. S. A., was on the line of the

35th parallel. It started from Fort Smith, and ook the route by the valley of the Canadian iver and Anton Chico to Albuquerque. Thence it proceeded westward by Zuñi, the valley of the Colorado Chiquito, the valley of Bill William's ork, the valley of the Mohave, and the Cajon ass, to San Pedro on the Pacific. The 4th expedition, under Lieut. Williamson, U. S. A., was itted out at San Francisco, and passing up the San Joaquin and Tulare valley explored the egion about Walker's, the Tejon, and other asses, and portions of the Mohave and Coloado rivers. The 5th expedition was over the western half of the line of the 32d parallel, and was commanded by Lieut. Parke, U. S. A., who was detached from Lieut. Williamson's arty for the purpose. It proceeded by way of Warner's ranch to Fort Yuma, and up he Gila to the Pimo and Maricopa villages, hence by way of Tucson and Doña Aña to El Paso. The 6th expedition was on the eastern alf of the line of the 32d parallel, and was ommanded by Capt. Pope, U. S. A. It started rom El Paso, and proceeded in almost a straight ine eastward to Preston on Red river, passing hrough the Guadalupe mountains, crossing the Pecos at the mouth of Delaware creek, and traversing the Llano Estacado for a distance of 125 niles.—In 1854 congress made two more appropriations of $40,000 and $150,000 respectively or deficiencies and for continuing the work. Three additional parties were organized. The first, under Lieut. Parke, U. S. A., examined certain new lines near the 32d parallel suggested by his former exploration, and surveyed a new connection with San Francisco by way of Los Angeles and the Salinas river. The second, under Lieuts. Williamson and Abbot, U. S. A., explored the Sierra Nevada and the Cascade mountains between San Francisco and the Columbia river, with a view to determining the practicability of connecting any northern road with the former city. The third, under Capt. Pope, made some experiments in Artesian well boring on the Llano Estacado, the object being to determine the feasibility of obtaining by this means a supply of water for a railroad or other purposes. The reports of these surveys have been presented in 13 vols. 4to., and printed by congress, with handsome illustrations and elaborate maps and profiles. For exact information relative to the physical characteristics of the great West, they will long remain the standard authority. The determination of the relative practicability of the several routes for a railroad was intrusted by the Hon. Jefferson Davis, then secretary of war, to Capt. Humphreys, U. S. A., who made an elaborate report contained partly in vol. i. and partly in vol. vii. of the series. His final conclusions are presented in the following abridged table from vol. vii.:

Routes.	Distance by air line.	Distance by proposed railroad route.	Sum of ascents and descents.	Length of level route of equal working expense.	Comparative cost of different routes.	No. of miles of route through arable land.	No. of miles of route through land generally uncultivable, arable soil being found in small areas.	Altitude above the sea of the highest point on the route.	Remarks.
	Miles.	Miles.	Feet.	Miles.				Feet.	
oute near 47th and 49th parallels, from St. Paul to Seattle	1,410	2,025	18,654	2,878	$140,871,000	535	1,490	6,044	Tunnel at elevat'n of 5,219 feet.
oute near 47th and 49th parallels, from St. Paul to Vancouver	1,455	1,864	17,654	2,198	130,781,000	374	1,490	6,044	Tunnel at elevat'n of 5,219 feet.
oute near 41st and 42d parallels, from Council Bluffs, via South pass, to Benicia	1,410	2,032	29,120	2,583	116,095,000	632	1,400	8,373	
oute near 38th and 39th parallels, from Westport, via Coo-che-to-pa and Tah-ee-chay-pah passes, to San Francisco	1,740	2,080	49,985	3,026	Impracticable.	620	1,460	10,032	Tunnel at elevat'n of 9,540 feet.
oute near 38th and 39th parallels, from Westport, via Coo-che-to-pa and Madelin passes, to Benicia	1,740	2,290	56,514	3,360	Impracticable.	670	1,620	10,032	Tunnel at elevat'n of 9,540 feet.
oute near 35th parallel, from Fort Smith to San Francisco	1,550	2,096	48,521	3,015	106,000,000	646	1,450	7,550	
oute near 35th parallel, from Fort Smith to San Pedro	1,360	1,820	48,862	2,745	92,000,000	420	1,400	7,550	Tunnel at elevat'n of 4,179 feet.
oute near 32d parallel, from Fulton to San Francisco, by coast route	1,630	2,024	38,200	2,747	90,000,000	834	1,190	5,717	
oute near 32d parallel, from Fulton to San Pedro	1,400	1,598	30,181	2,169	68,000,000	408	1,190	5,717	
oute near 32d parallel, from Fulton to San Diego	1,360	1,533	33,454	2,167	68,000,000	374	1,159	5,717	

lls to authorize the construction of a road on several of these routes have at different nes been before congress, the last of which oposed three roads, one from Lake Superior to Puget's sound, the second from the western borders of Missouri and Iowa through Utah to San Francisco, and the third from the western border of Texas, also to San Francisco.

PACINI, Giovanni, an Italian composer, born in Syracuse in 1796. He was sent at an early age to Rome to be educated as a chapel-master, whence he is known in Italy as Pacini di Roma. His tastes led him to cultivate secular music, and at the age of 18 he produced a comic opera entitled *Annetta e Lucinda*, which proved successful. From that period until 1830 he was a prolific composer of pieces for the stage, which in style resemble the productions of Rossini. In 1831 his opera *Giovanna d'Arco* failed in Milan, although sung by Rubini, Tamburini, and Mme. Lalande; and the composer, disgusted with his ill success, ceased thenceforth to write for the stage. One of his best known operas is *Saffo*.

PACTOLUS (now *Sarabat*), a small river of Lydia which had its source in the N. side of Mt. Tmolus, and, after a northerly course past Sardis, united with the river Hermus. When Midas besought Bacchus to take back from him the fatal gift of turning all that he touched to gold, the god directed him to bathe in the Pactolus, whose sands thereupon were converted into the precious metal. (See Midas.) The river was long famous for its gold washings, but at the beginning of the Christian era the "golden sands" were not worth collecting.

PACUVIUS, Marcus, a Roman dramatic poet, born in Brundusium about 219 B. C., died there in 130 B. C. He is said to have been a nephew of Ennius, and was a friend of Lælius and Accius. He passed most of his life in Rome, where he devoted himself with considerable success to painting, and executed some works in the temple of Hercules in the forum Boarium. The ancient writers agree in styling him one of the greatest of the Latin tragic poets; and though most of his subjects were borrowed from the Greek dramatists, his plays were not mere translations like those of his predecessors, and his style was elevated and forcible. He composed several tragedies founded on Roman history, in one of which, entitled *Paulus*, the hero was Lucius Æmilius Paulus, the conqueror of Perseus, king of Macedon. He was also the author of a play called *Orestes*. Only fragments of his writings are now extant. They were collected by Henry Stephens (Paris, 1564), and have since been printed by Bothe in his "Fragments of the Latin Scenic Poets" (Leipsic, 1834), and in several editions of the *Corpus Poetarum Latinorum*.

PADANG. See Sumatra.

PADERBORN, a town of Prussia, capital of a circle of the same name in the government of Minden, Westphalia, situated on the river Pader and on the railway from Berlin to the Rhine, 41 m. S. from Minden; pop. 10,768. It has narrow, tortuous, and gloomy streets, and contains a cathedral of the 14th century, a seminary with faculties of theology and philosophy, a Catholic gymnasium, a normal school, 4 convents, and blind, lying-in, and orphan asylums. It is the seat of the Westphalian historical and antiquarian society, has manufactures of brandy and several other articles, and carries on a considerable trade in agricultural produce. Paderborn was founded by Charlemagne, who assembled here several diets of Saxony, and made the town a bishopric, which was subsequently erected into a principality of the empire. In the middle ages it belonged to the Hanseatic league. Ceded to Prussia in 1803, it was incorporated with the kingdom of Westphalia in 1806, and restored to Prussia by the treaty of Vienna.

PADILLA, Juan Lopez de, a Spanish patriot, born about 1490, executed at Villalar, April 24, 1521. He was the son of Don Pedro Lopez, a nobleman who held the office of *adelantado mayor* of Castile. Gifted with talents, courage, and high spirit, he was one of the foremost to complain of the grievances to which the Spaniards were subjected under the Flemish officials appointed by Charles V.; and when the cortes in 1520 voted the monarch a "free gift" without obtaining the redress of any of their wrongs, he incited the people of Toledo to rise in insurrection. Being appointed their leader, he seized the gates, forced the governor to surrender the castle, and organized a popular form of government composed of deputies from each parish of the city. Similar risings took place at Segovia, Toro, Salamanca, Murcia, and Avila; and at a meeting in the last named city a solemn league was formed by the revolutionary party, and the care of their interests committed to a *junta de las comunidades* composed of deputies from all the towns. The cardinal Adrian of Utrecht, who held the regency of Spain, ordered Ronquillo, one of the king's judges, to repair to Segovia with a body of troops and proceed against the insurgents according to law; but the inhabitants shut their gates against him, and before he could force an entrance Padilla, arriving with reinforcements from Toledo, obliged him to retire with the loss of his baggage and military chest. In a short time the rebellion was almost general. Padilla marched suddenly to Tordesillas, where the queen mother Joanna resided, and, renouncing the authority of the regent, placed her at the head of the government. The queen, who had long been in a state of mental debility, seemed for a brief interval to recover her reason, and her speedy relapse into her former condition was carefully concealed. The junta now removed to Tordesillas, and sent Padilla to Valladolid to seize the members of the council and bring away the public archives, seals, and treasury books. The cardinal regent was deposed, and a remonstrance was despatched to Charles, in which the junta proposed a thorough reform of the political constitution of the state. The nobility, who saw in these measures an attack upon the privileges of their order, were filled with indignation, and when an army of 20,000 men was soon afterward raised, succeeded in depriving Padilla of the command and conferring it upon a young noble named Don Pedro de Giron, whose incapacity ed to the capture of Tordesillas by the royal- sts, the seizure of the queen's person, and the ecovery of the public seal. The quarrel be- ween the nobles and the commons now broke hrough all restraint. Giron retired to his state. The army of the people rapidly aug- nented, and Padilla again taking the command nade himself master of several small towns, nd advanced upon Torrelobaton, which he arried by storm after a desperate siege. The ruits of this victory were lost however by the rresolution of the junta, which consented to a hort truce during which the undisciplined opular army rapidly dwindled away, while he royalists under the conde de Haro had ime to prepare for battle. As soon as the ruce expired Haro advanced upon Torrelobaton, and Padilla retreated. He was overtaken t Villalar, April 23, 1521, defeated, and made risoner, and on the next day was executed ith his two principal officers without any orm of trial.—MARIA PACHECO, the wife of the receding, belonged to one of the most illustri- us families of Spain, and was an ardent sup- orter of her husband. When he was in great trait for money after the defeat of Giron, she roposed to seize the rich ornaments in the athedral of Toledo, and to avoid the appear- nce of sacrilege entered the church with her etinue clad in mourning, and falling on her nees, beating her breast, and asking pardon f the saints for what she was about to do in a ood cause, stripped the shrines and altars of ll that was valuable. After her husband's leath she placed herself at the head of the opular party, invited the French, who had just invaded Navarre, to advance into Castile, nd neglected no means to keep alive the rev- lutionary spirit. The French however were lefeated, the insurrection was gradually sub- lued, and Toledo at last falling after a long iege, she escaped into Portugal, where she assed the rest of her life.

PADILLA, LORENZO DE, a Spanish historian, orn in Antequera, Andalusia, died in 1540. Ie was archdeacon of Ronda, and one of the istoriographers of Charles V., and left a gen- ral history of Spain, only a small part of which as ever printed. He was also the author of a *atalogo de los santos de España* (fol., Toledo, 598), and a *Libro de las antiguedades de Es- aña*, edited by Pellicer (12mo., Valencia, 669). Other works by him are yet unpublished.

PADISHAH, a title assumed by the Turkish ltan. It is a Persian word derived from *pad*, rotector or throne, and *shah*, king or prince. riginally the Ottoman Porte gave this title to e king of France only, the other European onarchs being called *kral;* but it is now also pplied to the emperors of Russia and Austria.

PADUA (It. *Padova*), a province of Austrian aly, bounded N. by Vicenza and Treviso, E. y Venice, S. by Polesina, S. W. by Verona, and W. by Vicenza; area, 836 sq. m.; pop. in 357, 318,000. In the W. is a volcanic group lled the Euganean hills, near which are numerous mineral springs. The surface in other parts is generally level. The principal rivers are the Adige, which forms the S. boundary, the Brenta, the Musone, and the Bacchiglione. The soil is fertile, and wheat, maize, rice, hemp, flax, grass, and the grape are carefully cultivated. Sheep, poultry, silk, and oil are also produced. The province is traversed by a number of irrigating and navigable canals.—PADUA (anc. *Patavium*), the capital of the above described province, is situated on the Bacchiglione, 20 m. W. from Venice, in lat. 45° 24′ N., long. 11° 52′ E.; pop. about 50,000. It is connected by railway with Venice, and is traversed by several canals, which give it communication with the lagoons and other places. The Italians sometimes call it *Padova la Forte*, and in ancient times it certainly deserved that appellation, but its defences are now dilapidated. The old wall which surrounds it is triangular in form, bastioned, pierced by 7 gates, and faced by a dry ditch of no great depth, which can readily be filled with water. It is about 6 m. in circuit. The city is irregularly built, and in its general aspect gloomy and unattractive. The narrow, unpaved, and dirty streets are lined by arcades or long rows of arches, generally pointed, supporting the houses, and are interrupted here and there by irregular open spaces, and on the outskirts by wide *piazze*. The houses are old, lofty, and for the most part well built, and many of the public edifices are fine specimens of architecture. The *palazzo della ragione*, or town hall, built between 1172 and 1219, stands entirely upon open arches surrounded by a loggia, and is covered by a vast roof unsupported by pillars and rising about half as high again as the walls. The great hall is 240 feet long, 80 feet wide, and 80 feet high. It is closely covered with curious allegorical paintings in 319 compartments, said to have been designed by Giotto, but entirely repainted after having been several times damaged by fire and water. The hall is also decorated with two Egyptian statues presented by Belzoni, a bust of the traveller himself, a bust of Lucrezia Dondi, and a bust with the inscription P. T. L. E., which Paduan antiquaries interpret to mean *Patavini Tito Livio Erexerunt*, "Erected by the Paduans to Titus Livy." The *duomo* or cathedral is said to have been designed by Michel Angelo, but it was not completed until 1754, having been two centuries building. It is of brick and not remarkable for its architecture, but has some good paintings. The baptistery, a Lombard building of the 12th century, contains many interesting frescoes. The *biblioteca capitolare*, or cathedral library, owes its foundation partly to Petrarch, who was a canon of Padua, and whose portrait, cut from the wall of the house in which he lived, is now in the library building. The bishop's palace and the *palazzo del capitano* are also worthy of notice. The central part of the latter is occupied by a remarkably fine clock tower. The church of

Sant' Antonio and the *scuola de Sant' Antonio* adjoining it contain some fine paintings. The church of Sta. Giustina is a fine marble edifice, also rich in works of art. In front of it is the Prato della Valle, an oval surrounded by a small canal and decorated with about 80 statues, 2 of which are by Canova. In the midst of the Arena, the ruins of a Roman amphitheatre afterward converted into a fortress, is a chapel built by Giotto and adorned with some of his best paintings. The university of Padua, founded early in the 13th century, was a famous school of law and medicine, and is still the most celebrated seat of the latter science in Italy. It has also faculties of theology, law, and humanities, and from 1,500 to 2,000 students. The present edifice was begun in 1493, and the interior cortile, by Palladio, has great beauty. Galileo taught mathematics here for 20 years, and a stolen bit of his spine is preserved in the museum. It was at this university, according to common belief, that dissection of the human body was first practised for scientific purposes. The botanic garden of Padua, established in 1543, is the oldest in Europe. The city has a celebrated society of arts and sciences, an episcopal seminary, several inferior institutions of learning, and various libraries and museums. It manufactures silks, ribbons, leather, and woollen cloth, and trades in wine, oil, cattle, and garden vegetables. The fair of St. Anthony, which lasts during 15 days in June, is an occasion of great bustle and gayety.—Padua is one of the most ancient cities of Italy, and according to the legend, of which Virgil makes mention in the Æneid, was founded by Antenor after the fall of Troy. In 1274 a skeleton enclosed in a marble sarcophagus and grasping a sword was dug up in Padua, and at once pronounced to be that of the Trojan founder. The sword was given to Alberto della Scala in 1334, and the sarcophagus now rests under a *baldacchino* in one of the streets. The ancient Patavium was the capital of the Veneti, and became a rich and powerful city. Even after it fell under the power of the Romans it continued for some time to be one of the first cities of upper Italy, but it was gradually surpassed by Aquileia and Mediolanum. Destroyed by Attila in 452 and by the Lombards in 601, it rose each time from its ashes, and by the 10th century had become once more one of the most important places of northern Italy. In 1289 it became subject to the great Ghibelline leader Ezzelino da Romano, surnamed from his cruelty the Ferocious, who, after 50,000 persons had perished through his means, was defeated in 1259 by a league of several cities, and died in prison. Padua was now for some years independent, but in 1337 passed into the hands of the house of Carrara, and in 1405 into those of Venice, with which it was transferred to Austria by the treaty of Campo Formio in 1797. Among the distinguished natives of Padua are Livy, Thrasea Pætus, and Belzoni.

PADUCAH, the capital of McCracken co., Ky., on the left bank of the Ohio river, immediately below the mouth of the Tennessee, [illegible] m. by the river below Louisville; pop. in [illegible], 7,000. It has an active trade, receiving large quantities of produce by the Tennessee and Cumberland rivers and the New Orleans and Ohio railroad. It contains several manufactories, the county buildings, 3 ship yards, [illegible] tanneries, 3 steam saw mills, 3 banks, and [illegible] churches.

PÆAN (Gr. Παιαν, Παιηων, or Παιων), according to Homer, the physician of Olympus; afterward a surname of Æsculapius the god of healing, and still later one of the names of Apollo. In the sense of "deliverer," the word was also applied to Thanatos or Death. From Apollo it was transferred to a triumphal song dedicated to him, and generally sung before or during a battle, and after a victory. The pæan before battle however was, according to some writers, a hymn to Mars. The pæan was always a loud and joyous song, and if chanted by way of supplication expressed hope and confidence. The burden of the choral chants was ἰή or ὦ Παιάν. Pæans were occasionally sung to other gods, and even to mortals. The Lacedæmonians sang one to Neptune, the Greek army under Xenophon to Jupiter, Aratus to the Macedonian Antigonus, the Delphians to the Macedonian Craterus, and the Rhodians to Ptolemy I.

PÆONY, the familiar name of a number of species of highly ornamental garden plants, belonging to the natural order *ranunculaceæ*, and blossoming through several weeks in the early part of the floral season of the year. The word pæony seems to be derived from *pæonia*, and to have been applied to the plants by Hippocrates and Dioscorides in honor of Pæon the physician, who first made use of them in medicine; but Don thinks that it more probably was derived from Pæonia, a mountainous country of Macedonia, where some of the species grew. The pæonies are divided into two groups, those which are herbaceous and those which are shrubby; but the woody stems of the latter are of a herbaceous character, with very large pith. The roots of the pæonies are either tuberous or ramose; the foliage consists of biternate or bipinnate leaves; the flowers are large, rosy, crimson, or white; calyx with 5 leafy, unequal, permanent sepals; petals 5 to 10, somewhat orbicular; stamens numerous and polyandrous; disk fleshy; stigmas thick, bilamellate, surmounting the large, many-seeded 2 to 5 follicular carpels; seeds large, black and affixed by thickened crimson threads to the suture. The garden sorts are mostly those of double and multiplex petalled varieties, but there are many single-flowered or original forms worthy of cultivation. Some of them, as well as of the double sorts, we shall briefly enumerate.—The first species introduced into England was the officinal (*pæonia officinalis*, Linn.), a native of Switzerland and of other parts of Europe; it was known in cultivation as early as 1548. This species has large, single, crimson flowers, with yellow stamens, stems about 2 feet high, branches spreading. Its flowers appear from the 1st to the 6th of June. In this its primitive condition it is deemed worthy of cultivation. Of its numerous varieties, the blush (*P. o.*, var. *blanda*) is considered to be not a very desirable plant in he garden; it has the same habit as its parent; ts flowers are only middle-sized, of a pale purple, and appear about the 1st of June. The whitish flowered (*P. o.*, var. *albicans*) is, on he other hand, one of the best, with fine, large, double flowers of a pale rosy color when they irst expand, but gradually changing to nearly white; it is a free flowerer and desirable. The lesh-colored (*P. o.*, var. *carnescens*) is a very showy double variety, with pale rosy flowers faintly striped with a deeper tint; its flowers appear later than the others. Sabine's pæony P. o., var. *Sabini*), though a single kind, is very showy, with its extremely large, brilliant lowers, and bright yellow stamens. The old double red pæony (*P. o.*, var. *rubra*) is one of he showiest and most desirable, and has accordingly become so general, that seldom is here a garden of any pretensions that is without it; its rich dark crimson and abundant petals seem to entitle it to a better descriptive name than *rubra* (red), and in some flower catalogues it is designated as the *atrorubens*, a synonyme which may however cause confusion unless known. A second species is the edible pæony (*P. albiflora*, Pallas), a native of Siberia, and first introduced into England in 1784. It has large single white flowers, with bright yellow stamens; it grows about 3 feet high, branches much near the top, has a smooth, hining foliage, and blossoms about the middle of June. The best varieties with single flowers produced from it are the Tartarian (*P. a.*, var. *Tatarica*), a tall and erect plant, with flowers n great numbers, often in clusters from 2 to 6 on a branch, of a pale pink or flesh color. Another with flesh-colored petals (*P. a.*, var. *candida*) is a like tardy blooming sort. Of the double are several introduced from China and very desirable in every garden, comprising the double white (*P. a.*, var. *Whitleji*), whose lowers are produced on tall erect stems, the outer petals large and rounded, the inner narrower and more erect, of a creamy yellow at base—in perfection toward the end of June; he double crimson (*P. a.*, var. *Humei*), equally elegant, with very large double rose-colored blossoms; the rose-scented (*P. a.*, var. *fragrans*), with erect stems, large, double, deep rose-colored flowers, blossoming usually toward he end of June, with an odor when slightly perceived not unlike the perfume of the hardier kinds of roses; the *P. a.*, var. *Potsii*, introduced from China in 1822, with splendid crimson lowers, and of the same habit as the others; and the *P. a.*, var. *Reevesii*, of great magnificence, with large pale rose flowers, the petals having a velvety appearance. The freedom with which the edible pæony in some of its varieties can be impregnated, sometimes naturally, at other times by art, has enabled amateurs to raise still other superb or beautiful varieties, so that they have supplanted the earlier kinds, and surpassed them often in contour, color, and size of the flowers. In form some have flowers like the double anemone, and are called anemone-flowered on that account; thus the *anemonæflora striata* is described with outer petals very large, rosy violet, centre ones small rose and salmon, those in the middle elevated, forming a compact tuft at the centre. Another style is that with full and globular flowers, the stigmas obliterated, and known as the *Humea alba*, a remarkable variety. The *Victor modeste*, a French seedling, has large, full flowers, whose outer petals are of a beautiful rosy violet, those of the centre having each a large salmon-colored line running through them. A generally admired species, of a dwarfish habit with singularly beautiful fine-cut foliage, sometimes called the parsley-leaved pæony, is the *P. tenuifolia* of Willdenow, a native of Siberia; its blossoms are of a rich bright crimson; from this originated a double variety, with splendid double red flowers. One of the handsomest of the single pæonies is the *P. paradoxica* (Andrews), a native of the Levant, with wavy, glaucous foliage, and flowers whose large purple petals contrast finely with the yellow stamens; the fringed pæony (*P. p.*, var. *fimbriata*) is a double variety of it, ranking in beauty with the very choicest garden kinds. The number of distinct species of the herbaceous pæonies, according to Persoon, is 7. De Candolle enumerates more than twice as many, but probably several are no more than varieties of a few prominent forms.—The tree pæony (*P. moutan*, Sims) and its varieties are among the most remarkable plants of which the flower garden can boast. The word *moutan* has been applied to this species of pæony in China for more than 1,400 years; it also bears a name in that country which signifies the "king of flowers," alluding to the magnificence of the plant. Several of its varieties command the most extravagant prices there. The tree pæony is found in China and Japan, in a wild state in the north of China, and on the mountains in the province of Ho-nan. It was first observed by Europeans in the gardens at Canton, introduced into England by the exertions of Sir Joseph Banks, and received at the royal garden at Kew in 1787. From England it passed over to France and other parts of Europe in 1803, but when first seen in American gardens is unknown. In sheltered situations the plant will attain to a height of 6 to 10 feet in a few years, and no shrub can be more gorgeous, abounding as it does in leaves deeply cut into many-branched segments, and in very magnificent flowers of extraordinary size, which appear early in spring. One of the most showy varieties is the poppy-flowered tree pæony (*P. m.*, var. *papaveracea*, Andrews), which has indeed been adopted by some botanists as the type of the species. Its flowers are nearly single, consisting of 8 or 13 petals, white, with a deep purple spot on the lower part or base of each; the spots are rayed in lines about an inch and a half long from the centre, forming a star in the middle of the flower. Preceding the cultivation of this, however, was the Banks's moutan pæony alluded to above, and which is the sort most commonly seen in our gardens, having very large, full, and spreading blossoms, measuring in expansion 4 to 8 inches in diameter. The number of the petals depends upon the strength and health of the plant; variations in the size of the flowers take place in the same season and on the same plant, the older plants producing the finest blooms. The color is a light pink, becoming nearly white at the edges of the petals; there is also a purplish red spot at their base. The cut-petalled tree pæony (*P. m.*, var. *lacera*) is a very beautiful variety, and strikingly different from the others in the bright, rosy red of the petals, the innermost of which are much cut and gashed, curled up and distinctly bordered with a narrow edge of light carmine, which gives the whole flower a peculiarly rich and finished appearance. Twelve distinct varieties of the tree pæony are given by Mr. Loudon in his *Arboretum Britannicum*, and mention is made of others said to be in the possession of the Chinese, but the colors of the flowers of which render their existence dubious.—The only species as yet known native of America is the *P. Brownii* of Douglass, with an herbaceous, striate stem, leaves smooth on both sides, ternate or biternate, leaflets pinnatifid, laciniate; laciniæ oblong, those of the lower leaves obtuse; flowers small; sepals unequal, oval; petals of a reddish purple color. It is found near the confines of perpetual snow on the subalpine range of Mt. Hood, N. W. America; in Oregon, and on the Sierra Nevada of California. Dr. Torrey considers the *P. Californica* of Nuttall as identical.—The pæony is readily propagated by division of the roots and by seeds; and when these are procured by cross impregnation of choicer kinds, the chance of raising novelties of much value is greatly increased. Superb varieties have been accordingly raised in the different portions of the United States, particularly by amateurs in the vicinity of Boston. In selecting the seeds for sowing, the smaller ones in the capsules are the best as most likely to produce the most full-petalled flowers. In like manner the tree pæony has been reared from seed with encouraging success. The seedling plants come into blossom in 3 to 8 years, according to the care bestowed upon them. The tree pæony is also propagated from suckers which spring from the root, by layers, cuttings, and by grafting. September is considered the best time to remove the suckers, which should be skilfully detached from the main plant by a sharp knife, securing a portion of the roots. Layering is performed in the spring when the buds begin to swell, fastening the outer shoots into the soil by a wooden peg or hook, and slitting the lower side of the layer, an operation which requires much care on account of the brittleness of the wood; a modification of this plan is by girdling or ringing, *i. e.*, removing a ring of bark just below the buds at the shoots intended to be rooted in the process of layering. Cuttings should be taken off in August or September with a portion of the old wood attached, and planted in pots in a compost of loam, leaf mould and a large proportion of sand, covered with a bell glass, kept shaded and protected in winter from frosts, and toward spring plunged into a hot-bed to start the roots. Grafting is seldom resorted to, unless to increase some rarer variety, and the method is that termed crown grafting. The several sorts may be cultivated in the open air, covering the plants in winter in colder latitudes, and where deep snows might break the branches, with a perforated barrel, cask, or box, a method that secures the flowering for the next season, which sometimes fails. In pot culture the chief care is in not allowing the plants to start suddenly into growth and push their flower buds immaturely. If kept in a shady part of the greenhouse or conservatory, the display of blossoms will be longer preserved. The soil fitted for them is mostly good loam with a little leaf mould; and in the border a good loamy soil, with occasional prunings of the plants, will be found the best mode of cultivation.—The chief importance of these plants consists in the beauty of their flowers, which add so much to the character of a garden. The roots of *P. albiflora* and of *P. anomala*, according to Pallas, are eaten in Siberia, either simply boiled or as an ingredient in soups; and the seeds of the former are used in the same country instead of tea. Pæony seeds are however emetic and cathartic: and the root has the credit of being antispasmodic. All the species have an acrid principle concentrated in their roots and seeds, and they were formerly in great repute in medicine. The fresh roots of *P. officinalis* are acrid-narcotic, but when dry they are almost inert: and the dried petals, which are slightly astringent, are still occasionally preserved for use.

PAER, Ferdinando, an Italian composer, born in Parma in 1774, died in Paris, May 3, 1839. He exhibited much musical precocity, and is said to have composed an opera at the age of 10. Being placed in independent circumstances through the liberality of his godfather the grand duke of Parma, he was enabled to acquire a thorough education in music and in the various branches of polite learning. After producing several operas at Vienna and acting as chapelmaster at Dresden, he was in 1807 taken into the service of the emperor Napoleon, who appointed him imperial composer. He enjoyed equal marks of favor from the Bourbons, and between 1818 and 1825 was director of the Italian opera in Paris. He was a prolific composer of operas, cantatas, overtures, &c., and his dramatic pieces abound in striking melodies, with effective accompaniments. His chief operas are *Camilla*, *Sargino*, *Achille*, *Leonora*, *Dido*, *Griselda*, and *Agnese*.

PÆSTUM (originally *Posidonia*, city of Poseidon or Neptune), an ancient city of Lucania in southern Italy, situated in the N. W. extremity of that province, about 4 m. S. E. from the mouth of the Silarus (Selo), and upon a bay of the Tyrrhenian sea, called *sinus Pæstanus* (now gulf of Salerno). Its site, in the Neapolitan province of Principato Citra, is now called Pesto, and is covered with magnificent ruins, on a level uninhabited plain by the sea shore. The principal remains are those of two temples, hexastyle peripteral buildings, which, with the exception of the temple of Corinth, are considered to be the severest and most massive examples of Doric architecture now extant. The finer and older of the two, known as the temple of Neptune, is open to the sky, and is 180 feet long and 80 feet wide. The other, variously called the temple of Vesta and of Ceres, is 107 feet in length by 48 in width. There is another edifice supposed to have been a basilica, but whose purpose it is impossible to determine. Beside these buildings, there are the ruins of an amphitheatre, of many private houses, and of the walls and gates. The walls are built of large polyhedric masses of travertine, and form an irregular pentagon 3 m. in circuit; they are in many places still 12 feet high. Remains of 8 towers and 4 gateways are traceable, and the eastern gateway with an arch 50 feet high is almost perfect. Around and amid the whole grow profusely the famous Pæstan roses, which even in their wild state flower twice a year, and are remarkable for their fragrance.—The origin of Pæstum, or rather Posidonia, is doubtful. A colony of Greeks from Sybaris settled there in 524 B. C., but the city probably had a previous existence. Under the Sybarites it flourished and became powerful. It was taken by the Lucanians about 430 B. C., and thenceforth gradually lost the character of a Greek city, and its inhabitants finally ceased to speak the Greek language. During the war with Pyrrhus the Romans founded there a Latin colony, and it subsequently lost all importance. It is mentioned in the 5th century as the seat of a bishopric, and about the 11th century, after the devastation of the Saracens, it fell into complete decay. Its ruin, generally attributed to foreign enemies, is by Strabo assigned to its unhealthy atmosphere. Sulphurous springs in the neighborhood still form stagnant pools, and a stream running under the walls overflows the low grounds and forms a marsh around the city.

PAEZ, José Antonio, ex-president of Venezuela, born in Araure, province of Varinas, in 1790. The earlier years of his life were spent among the herdsmen of the plains, and at the age of 18 he became overseer of the cattle estates of a wealthy Spaniard. When in 1810 the revolution broke out, Paez joined the militia of Varinas in the insurgent army, and in the first campaign was raised to the rank of sergeant of cavalry. The insurrection, however, was put down in 1812. In 1813, on the approach of Bolivar to Venezuela, Paez was offered by the Spanish commander a captain's commission, but, refusing to accept, made his escape by flight, and again joined the patriot forces. During the campaigns of 1813, '14, '15, he did effective service to the revolutionary cause, and was twice taken prisoner, in both cases narrowly escaping execution. On Feb. 16, 1816, he defeated the royalist chieftain, Don Rafael Lopez, in a night battle at Mata de la Miel, on the right bank of the river Apure, and again in June of the same year worsted him at Montecal. The result of the campaign, however, had proved hitherto disastrous to the patriot army. Venezuela, New Granada, and the plains of Casanare were in the hands of the Spaniards. Toward the close of 1816 Paez was made commander of the revolutionary forces, with the rank of brigadier-general, and immediately setting out against the enemy, defeated the Spanish general Lopez, took the city of Achaguas, and recovered the province of Apure and a part of Varinas in Venezuela, and Casanare in New Granada. On Jan. 28, 1817, he totally routed the Spanish army under La Torre on the plains of Las Mucuritas. During this year also he acknowledged the authority of Bolivar, who had just gained some successes, and henceforth they acted in concert. In 1819 Paez was raised to the rank of general of division, and during the campaign of that year acted with success against the Spanish general Morillo. New Granada and Venezuela were now united into one republic under the name of Colombia, with a territory embracing 115,000 square leagues. In 1821 the great battle of the war was fought on the field of Carabobo. In this battle Paez had command of the leading division, which was required to force its way through a narrow defile, the heights surrounding which were covered by the royalist artillery. Nevertheless, he led his troops forward with such impetuosity, that the Spaniards were driven from their position, and the fate of the day was decided. His services in gaining this victory established his military reputation, and were so conspicuous that Bolivar offered on the spot to appoint him general-in-chief of the army. The result of this battle secured the independence of Colombia, and compelled the Spanish commander, La Torre, to shut himself up in Puerto Cabello, the last stronghold of the royalists in Venezuela. In Nov. 1823, Paez carried by assault the town of Puerto Cabello, and with the fall of this fortress no trace of Spanish authority was left in Colombia. On the formation of the new government, he entered the senate as representative of the department of Venezuela; and during the years of peace which followed the expulsion of the Spaniards, he devoted himself to study, in order to make up for the defects of his early education. At the same time he took an active interest in political affairs, being extremely jealous of Bolivar, and acting as one of the leaders of the federative party. Disaffection to the confederacy had existed for a long time in Venezuela, when an executive order requiring a general enlistment of all citizens between the ages of 16 and 50 brought on an explosion. In the execution of this law in the city of Caracas, Paez gave so much offence by his arbitrary conduct, that the house of representatives determined to impeach him before the bar of the senate. Having been informed of this in April, 1826, he refused to obey the summons, and put himself at the head of the military, and of the large party opposed to the constitution. Venezuela was thus in a state of rebellion, and so it remained until the return of Bolivar, who quieted the insurrection, recognizing Paez as the commander in Venezuela. A general amnesty was promised, and also a convention to reform the constitution. The troubles however continued, and in Sept. 1829 Venezuela declared itself independent, and Paez was elected in the following year the first president of the republic, under the new constitution. A military insurrection against the government under the lead of Gen. José T. Monagas soon broke out, but was speedily quelled. After the close of his term of office Paez retired to his estates. A second insurrection by Monagas against the new president, Vargas, called him again into the field; and being a second time successful, he was presented by congress with a golden sword for his services, and honored with the title of "illustrious citizen." In 1839 he was again elected president, was succeeded by Soublette, and he in 1846 by Monagas, whose election Paez promoted, hoping that thus his ambition would be satisfied. Monagas endeavored to usurp the supreme authority, and on Jan. 24, 1848, attacked the house of representatives with an armed force. A spirit of resistance was aroused, and Paez took the command of the revolutionary forces. He was, however, unsuccessful, was captured and confined in prison in the city of Valencia in 1849, and subsequently in the fortress of San Antonio in the island of Cumana. Finally released by the order of congress that his sentence of exile should be carried into execution, he set sail for the United States on May 24, 1850. There he remained until 1858, and on Dec. 2 of that year he returned to Venezuela, the party of Monagas having been overthrown, and the sentence of banishment against Paez not only having been revoked, but a special invitation to return having been sent to him in New York, where he was residing. In 1860 he was accredited as envoy extraordinary and minister plenipotentiary to the United States, but in 1861 resigned that office in order to return to Venezuela.

PAEZ, Pedro, a Spanish missionary, born in Olmedo, New Castile, in 1564, died in Abyssinia in May, 1612. He was a member of the society of Jesus, and in 1587 sailed for Goa, whence he was despatched in the following year with Father Antonio Montserrat to direct a mission in Abyssinia. On the voyage thither they were made prisoners by an Arab pirate and carried to Sana, the capital of Yemen, where they passed 7 years in the most oppressive captivity. Ransomed at length by the viceroy of India, the two missionaries returned to Goa in 1596. Paez, after passing a few years at Diu and Cambay, again took ship for Abyssinia, and in 1603 reached Massowa, where he employed himself for some time in learning the native language, translating into it a compendium of the Christian doctrine, and instructing the children. The king, Za-Denghel, ordered him to appear at court with two of his pupils, and was so much impressed by their proficiency and the missionary's arguments, that he became a convert, and wrote to the pope and to Philip III. of Spain for more missionaries. The Abyssinian priests stirred up an insurrection in which Za-Denghel lost his life (1604); but the next king, Socinos or Melek-Segbed, was still more favorable to the Spaniard, and granted him a piece of ground for a convent, which he built without any other aid than that of the natives. Father Paez accompanied the king on his military expeditions, and on one of these occasions, while making an excursion from the town of Nagnina, discovered the sources of the Abai or Blue Nile, which he was the first European to visit. Bruce endeavors to discredit his narrative, but there is now no doubt of its truth. Paez died of fever, after persuading the king and his principal nobles to embrace Catholicity. After the death of Melek-Segbed the Jesuits were persecuted and the old religion was restored. Nicolas Antonio attributes to Paez a general history of Ethiopia (not published), a treatise *De Abyssinorum Erroribus*, and several letters printed in the *Literæ Annuæ*.

PAGAN, Blaise François, comte de, a French military engineer, born in Avignon in 1604, died in Paris in 1665. He entered the French military service at an early age, and at the siege of Montauban in 1621 lost an eye by a musket shot. During the wars which marked the administration of Richelieu, he distinguished himself by his talents and gallantry, and in 1642 attained the rank of *maréchal de camp*. In the same year he had the misfortune to lose his other eye, and being incapacitated for further service in the field, he devoted the remainder of his life to studies connected with his profession. In 1645 appeared his *Traité des fortifications*, which for a number of years was a leading work on military engineering, and which was followed in 1651 by his *Théorèmes géométriques*. He also published a treatise on the planetary theory and some astronomical tables, and translated a Spanish account of the river Amazon, the chart accompanying which he is said to have drawn with his own hand. For an account of his improvements in defensive warfare, see Fortification.

PAGANINI, Nicolo, an Italian musician and composer, born in Genoa, Feb. 18, 1784, died in Nice, May 27, 1840. He early evinced a remarkable predilection for music, and was subjected by his father to a very severe training. At 6 years of age he was a violinist, and already began to practise novel effects upon his instrument, and to perform feats requiring great power and quickness of execution. At 8 he was so far advanced as to require the best teacher that Genoa could afford, and had composed a sonata of merit, which has been lost; and at the age of 9 he made his first public appearance in the largest theatre in Genoa, rousing the audience to an extraordinary pitch of excitement by the performance of variations, composed by himself, on the French air *La Carmagnole*. In 1797, in company with his father, he made his first musical tour in Italy, and soon after applied himself to composition, producing music which defied the attempts of other violinists, and greatly taxed his own powers. The severe discipline to which his father subjected him meanwhile became so irksome, that before attaining his 15th year he contrived to escape from the paternal authority, and commenced an independent course of concerts at Lucca, Pisa, and other cities. The flatteries and caresses lavished upon him, together with the possession and control of the large sums obtained by his professional labors, had an injurious effect upon the inexperienced boy, who soon fell into habits of dissipation and expended his earnings in debauchery and gambling. For several years he led a vagabond career, and about the age of 18, it is said, formed a connection with an Italian lady of rank, with whom he retired to an estate possessed by her in Tuscany. Here he renounced for a time his favorite instrument and devoted himself to the guitar; but his old tastes returning, he went in 1804 to Genoa and studied composition with renewed vigor. In the succeeding year he commenced another musical tour of Italy, and between 1806 and 1808 held the position of director of the orchestra in the service of the princess Eliza of Lucca, sister of Napoleon. It was at this period that he first performed his remarkable feat of playing the military sonata entitled "Napoleon" on a single string. His restless nature again impelled him to travel, and during the next 20 years he spent his time in the chief cities of Italy, where his fame exceeded that of any previous or contemporary violinist. In 1828 he made his first appearance in Vienna, and was received with an enthusiasm bordering on the wildest extravagance. Poems were composed in his praise, medals struck in his honor, articles of dress were named after him, and the emperor appointed him violinist of his private band. Rumors of having murdered his wife and his mistress were nevertheless circulated against him, which he found no difficulty in refuting. After a triumphant career in Germany he arrived in Paris in March, 1831, and during the next two months produced a sensation almost without a parallel in that city. Rossini is said to have wept upon hearing him play for the first time. In England, whither he went in May of the same year, his reception was not less enthusiastic, notwithstanding his avarice induced him to charge the most exorbitant prices for admission to his concerts. Soon afterward he retired to a country seat near Parma, but the latter years of his life were rendered unhappy by lawsuits and ill health. He left a fortune of several million francs, the greater part of which was bequeathed to his natural son Achillino, by a Jewess of Milan. His personal appearance, studiously eccentric, his facility in making his instrument produce effects at once startling and unearthly, and a certain mystery connected with his character and early career, gave rise to numerous stories, more or less apocryphal, which greatly enhanced his notoriety. He was of a gross and sensual disposition, in general exceedingly avaricious, and vain to excess of popular applause. As an artist his merit was transcendent, and his name has become a synonyme for all that is excellent in violin playing, notwithstanding that he degraded his art and did injustice to his own powers by feats little better than sleight of hand. His compositions, however, are full of invention and beauty. He excelled in his adagios, which were given with marvellous expression. His life has been written by his friend Schottky under the title of *Paganini's Leben und Treiben* (Prague, 1830).

PAGANISM, a general term applied to all forms of religious worship except Christianity, Judaism, and Mohammedanism. When Constantine forbade the worship of the heathen deities, the followers of the old religion retired to the country villages (*pagi*), where they could practise their rites in secrecy, and were hence called by the Christians *pagani*, or country people. The term thus came in time to denote heathens generally, irrespective of their places of abode. It was in the middle ages ignorantly applied to Mohammedans also.

PAGE. I. A N. E. co. of Va., bordered E. by the Blue ridge and W. by the Massanutten mountains, and intersected by the Shenandoah river; area, about 250 sq. m.; pop. in 1850, 7,600, of whom 957 were slaves. The soil is very fertile. The productions in 1850 were 128,430 bushels of wheat, 137,602 of Indian corn, 2,258 tons of hay, 1,194 lbs. of tobacco, and 12,907 of wool. There were 16 grist mills, 8 saw mills, 5 tanneries, 2 furnaces, 11 churches, and 468 pupils attending public schools. Value of real estate in 1856, $2,100,422, being an increase since 1850 of 23 per cent. Capital, Luray. II. A S. W. co. of Iowa, bordering on Missouri, drained by the Nodaway and several branches of the Nishnabatona and Takio rivers; area, about 600 sq. m.; pop. in 1859, 3,674. It has a rolling surface and fertile soil. The productions in 1859 were 11,196 bushels of wheat, 2,734 of oats, 235,869 of Indian corn, 10,541 of potatoes, 4,359 lbs. of wool, and 48,712 of butter. Capital, Page Court House.

PAGE, John, an American statesman, born at Rosewell, Gloucester co., Va., April 17, 1743, died Oct. 11, 1808. He was educated at William and Mary college, where he contracted a lasting friendship with Thomas Jefferson, then a student there, and subsequently became a visitor of the college and its representative in the house of burgesses. He was also a member of the colonial council. During the revolutionary struggle he rendered important service as a member of the committee of public safety and as lieutenant-governor of the commonwealth, and he also contributed freely from his private fortune to the public cause. At one time he held command of a militia regiment raised to repel a British invasion. Upon the adoption of the federal constitution he was elected a member of congress, and he continued to act in that capacity during the entire administration of Gen. Washington. In 1802 he was elected governor of Virginia, and soon after the expiration of his term of office was appointed by President Jefferson commissioner of loans for the same state, a position which he held until his death. He left a fragment of a brief autobiography, and also ample materials for a memoir of his life and times, the latter of which have been accidentally lost.

PAGE, Thomas Jefferson, a commander in the U. S. navy, born in Virginia about 1815. He entered the navy as a midshipman in Oct. 1827, was promoted to the rank of lieutenant in June, 1833, and to his present rank in Sept. 1855. In the early part of his service he was employed for a time upon the coast survey. In 1853 he was appointed to the command of an expedition for the exploration of the tributaries of the river La Plata and adjacent countries, from which he returned in May, 1856, after an absence of 3 years and 4 months. His narrative of this expedition was published in 1859 (8vo., New York). In 1857 congress made a further appropriation to complete the exploration of the Parana and tributaries of the Paraguay river. Commander Page was assigned to this service, which was finished in Dec. 1860.

PAGE, William, an American painter, born in Albany, N. Y., Jan. 23, 1811. He went to the city of New York with his parents in 1819, and was sent to school to Joseph Hoxie, since become eminent as a politician, who then had a school in the Bowery. He was subsequently sent to a public school, and at the age of 11 received a premium from the American institute for a drawing in India ink. At the age of 14 he was taken from school and put into the office of Frederic De Peyster, with a view to his becoming a lawyer; but Mr. De Peyster, discovering that his pupil had a much stronger propensity for drawing the human figure than legal instruments, took him to Col. Trumbull, the painter of the "Signing of the Declaration of Independence," to ask whether he would be likely to succeed as an artist. The colonel advised him to stick to the law, as that profession was more remunerative than art; but his inclinations for drawing were so decided that through the influence of his half brother, Dr. Dunnell, he was put into the hands of Mr. Herring, a portrait painter, who made him generally useful by employing him upon banners, transparencies, and other ornamental work of that kind. He remained nearly a year with Herring, and made his first attempt at oil painting under his tuition. On leaving his studio, he became a pupil of S. F. B. Morse, first president of the national academy, who then had a studio on the corner of Broadway and Pine street. He was admitted as a student at the national academy, and received the premium of a large silver medal for his drawings from the antique. At the age of 17 he became the subject of strong religious influence, was admitted a member of a Presbyterian church, and under the impulse of his religious enthusiasm determined to abandon the easel and devote himself to the ministry of the gospel. In pursuance of this scheme he went to Andover, Mass., to prepare himself for his theological studies. He remained there a very short time, when he went to Amherst, but subsequently returned to New York to resume his artistic pursuits. He spent a year in Albany painting portraits, and excited great expectations by the brilliancy of his color and the accuracy of his drawing. He was desirous of going to Europe, and had completed his arrangements for that purpose when he went to New York, and, meeting with a young lady for whom he formed a violent attachment, was married before he became of age, and remained at home. He at once took a high position as a portrait painter, and was admitted a member of the national academy. He was appointed to paint the portrait of Gov. Marcy for the New York city hall, and was sent for to paint that of John Quincy Adams for Faneuil hall in Boston. Besides portraits, he executed several historical compositions, among which were a "Holy Family," now in the Boston Athenæum, "The Wife's last Visit to her Condemned Husband," and "The Infancy of Henri IV." In the midst of his growing popularity he had to contend with a terrible domestic calamity which resulted in his procuring a divorce from his wife. After this event he married again, went to Boston to reside, painted there a large number of portraits, and returned to New York, where he remained two years, and then went to Europe, residing 11 years in Florence and Rome. Having while in Rome procured a divorce from his second wife, he married again, and returned to New York in the autumn of 1860, where he continues to reside. During his residence in Italy he painted the portraits of many distinguished Englishmen and Americans, and produced his two "Venuses," his "Moses and Aaron on Mount Horeb," the "Flight into Egypt," the "Infant Bacchus," and other works. His copies of Titian, whose method of painting he professes to have discovered, were so remarkably like the originals, that one of them was stopped by the authorities at Florence under the belief that it was the original painting. Since his return to New York he has delivered a course of lectures on art at the rooms of the mercantile library, and has published a "New Method of Measuring the Human Body," based upon the models of the antique.

PAGÈS. See Garnier-Pagès.

PAGET, Lord. See Anglesea, Marquis of.

PAGODA, a kind of temple common in China and Indo-China, and especially in Burmah. In China pagodas form conspicuous and characteristic features of the scenery, and are generally towers 9 stories in height. The most celebrated of these was the porcelain tower at Nanking, which was destroyed by the rebels in 1856. This building was begun in 1412 and finished in 1431, and, having been erected as a monument of gratitude to an empress of the Ming dynasty, was called the temple of gratitude. It was octagonal in form and 236 feet in height, inclusive of an iron spire 30 feet high which surmounted it, and from the summit of which 8 chains depended, to each of which were attached 9 bells, while to each angle of the lower roofs a bell was attached, making the total number of bells 144, which tinkled in harmony to every breeze. The most striking peculiarity of this pagoda, however, was that its brick walls were covered with porcelain, producing a singular brilliancy of effect. Almost every town in China possesses one or more of these structures, all alike in design, but differing in dimensions and in the richness of the materials and ornaments. Fergusson, in his "Handbook of Architecture," says: "I cannot but think that the tapering octagonal form, the boldly marked divisions, the domical roof, and the general consistence in design and ornament of these towers, entitle them to rank tolerably high among the tower-like buildings of the world." The Burmese pagodas are square edifices of great extent, the base comprising porticos and central chambers, and terminating upward in octagonal or polygonal straight-lined pyramids or spires. The principal of these temples is called Khomado, and is situated on the bank of the Irrawaddy nearly opposite Ava. It is 160 feet high, surmounted by a spire 22 feet in height and 15 in diameter. The circumference of its base is 944 feet, and it is surrounded by a stockade of dwarf pillars of sandstone about 5 feet in height and 802 in number. The next great pagoda of Burmah is the Shoëmadoo at Pegu, which rises to the height of 361 feet with a diameter at the base of 395 feet. At Rangoon is another called the Shoëdagong, which resembles in size and plan the Shoëmadoo. Throughout Burmah these edifices abound, varying from the dimensions of those already mentioned to 30 feet high.

PAHANG, or Paäng, a Malay state on the E. side of the peninsula of Malacca, bounded N. by the state of Tringany, E. by the China sea, S. by Johore, and W. by Salengore, extending from lat. 2° 10′ to 4° 15′ N., and from the central range of mountains which traverse the peninsula to long. 104° E.; area, about 15,000 sq. m.; pop. estimated at 20,000. The chief town, which gives the name to the state, is situated on the left side of a small river, in lat. 3° 40′ N., and is little better than a collection of huts, with a village on the opposite bank inhabited principally by Chinese. The coast is indented by several fine bays with sandy beaches, and numerous islands extend off it to the distance of 30 m. Some of these islands are of considerable size and mountainous, while many are small and low, and the N. E. sides of all are worn into cliffs and caverns by the action of the monsoons from that quarter. Most of them are covered with forests of large timber; few are barren, and some are covered with turfy grass. On the mainland the country is mountainous, the highest peak having an elevation of 3,221 feet. The Pahang and the Indau are the only navigable rivers, and they only admit boats or native craft. The geological formation consists of granite, sandstone, shale, and clays; and that of some of the islands is the same, while a few consist of trap rock. Iron, gold, and tin are found. The country bordering the sea is covered with forest, and the scenery is very beautiful; but the interior is little known. The exports consist of gold, tin, timber, gutta percha, damar, and rattans. The population is composed of civilized Malays, several tribes of the same race in a wild state, some tribes of oriental negroes, and about 3,000 Chinese. The rajah is nominally dependent on the sultan of Johore. The Portuguese called the country Pam.

PAHLEN, a noble family of Courland, whose origin has been ascribed to Pomerania and to Livonia. In Russian history several members of the family have acted conspicuous parts. In 1679 John was created a baron by Charles XI. of Sweden. In the Turkish war of 1769 Peter (born in 1746, died in 1826) fought under Rumiantzoff, was made colonel and subsequently major-general, and was prominent in the storming of Otchakov in 1788. In 1790 he was sent as ambassador to Stockholm, and when Courland came into the possession of Russia in 1795 he was appointed its governor. The czar Paul raised him to the dignity of a count in 1799, and created him a general of cavalry and military governor of St. Petersburg. He was a leading actor in the conspiracy to dethrone the czar, which resulted in the assassination of Paul on the night of March 23, 1801. Regarded with distrust and aversion by Alexander, he retired to an estate near Mitau, where he passed the rest of his life, forgotten.—His son Peter, born about 1775, was one of the most distinguished generals in the war against Napoleon. In the campaigns of 1812 and 1813 he led a cavalry division, but was badly beaten at Nangis by the French, while commanding Wittgenstein's advanced guard. In 1827 he was made general of the cavalry, and achieved distinction in the Turkish war of the following 2 years. He also participated in the campaign in Poland in 1831, from 1835 to 1841 acted as ambassador at Paris, and in 1849 was appointed general inspector of all the cavalry, which office he still holds. His brother Paul also chose the profession of arms, and took part in the various wars of Russia. Another brother, Frederic, has been Russian ambassador at Washington and Munich; in 1829, along with Count Orloff, he negotiated the treaty of Adrianople, and in 1834 became a member of the privy council.—Baron Matthew, who belongs to a collateral branch of the family, was a colonel at the taking of Lüneburg in 1813, and from 1830 to 1845 was governor-general of Livonia, Esthonia, and Courland. He is now general of cavalry, senator, and attached to the department of military affairs.

PAINE. I. Elijah, LL.D., an American jurist, born in Brooklyn, Conn., Jan. 21, 1757, died in Williamstown, Vt., April 28, 1842. He was graduated at Harvard college in 1781, and, after studying law, removed to Vermont in 1784, where he became extensively connected with the development of that state. He constructed a turnpike of about 20 m. over the eastern spurs of the Green mountains, and a manufactory of broadcloths, at a cost of $40,000, at Northfield, then a wilderness. These works were undertaken, as he said, as much for the general interest of the state as for his own. The turnpike, indeed, he ultimately gave to the state. He was also extensively engaged in agricultural enterprises. He was elected in 1786 a member of the convention to revise the constitution of the state, and acted as its secretary. In 1789 he was one of the commissioners to adjust the claims between New York and Vermont. He was a member of the state legislature from 1787 to 1791, at the end of which term he was appointed a judge of the supreme court of the state, and held the office till 1794, when he was elected to the U. S. senate. At the expiration of the 6 years' term in 1801 he was reëlected; but being simultaneously appointed a judge of the U. S. court for the district of Vermont, he resigned the senatorship. He continued on the bench until a few weeks before his death. Judge Paine was an earnest promoter of education, and a trustee of Dartmouth and Middlebury colleges and of the university of Vermont. He was also president of the Vermont colonization society, and a member of the American academy of arts and sciences, of the American antiquarian society, and of other learned associations. II. Martyn, M.D., LL.D., an American physician, son of the preceding, born in Williamstown, Vt., July 8, 1794. He was graduated at Harvard college in 1813, studied medicine in Boston with Dr. John Warren, and practised in Montreal, Canada, from 1816 to 1822, when he removed to New York. Here he soon acquired a large practice. He participated actively in the treatment of the epidemic malignant cholera of 1832, during the prevalence of which he addressed a series of letters upon the disease to Dr. J. C. Warren of Boston, which were published in the periodicals of the day, and subsequently collected into an 8vo. volume, entitled "The Cholera Asphyxia of New York." Dr. Paine's next scientific work was "Medical and Physiological Commentaries" (2 vols. 8vo., 1840; vol. iii., 1844). In 1842 he published a work on "Materia Medica and Therapeutics," upon an original plan, and in 1847 a work entitled "The Institutes of Medicine," which has reached a 6th edition. The "Institutes" and the "Commentaries" have received, it may be said, almost unanimous commendation from the medical press in Europe and America. In 1849 he published "The Soul and Instinct distinguished from Materialism," the essential parts of which were subsequently incorporated in his "Institutes of Medicine;" and in 1852 he prepared a memoir of his son Robert Troup, embracing numerous academic essays and letters, privately printed in a superb quarto of 1,000 copies, and a single copy in folio designed for the library of Harvard college, at which institution his son was graduated in 1851, the year of his death. In 1856 Dr. Paine contributed an elaborate essay on "Theoretical Geology" to the "Protestant Episcopal Quarterly Review" (New York), directed against the geological interpretations of the Mosaic narrations of creation and the flood. This work has also appeared in a distinct form. In 1841 Dr. Paine united with 5 other medical gentlemen in establishing the university medical college (the medical department of the university of New York), in which he has been permanently a professor, having held for many years the chair of the institutes of medicine and materia medica, and more recently that of therapeutics and materia medica, which he now occupies. During the session of the legislature in 1854 he waited upon that body at Albany, and became a prominent agent in effecting a repeal of the law which rendered dissections of the human body a state prison offence, and of legalizing the pursuit. He is a member of many of the principal learned societies in Europe and America. III. Elijah, brother of the preceding, an American jurist, born in Williamstown, Vt., April 10, 1796, died in New York, Oct. 6, 1853. He was graduated at Harvard college in 1814, entered the law school of Litchfield, Conn., immediately afterward, and having been admitted to the bar established himself in the city of New York. He was associated with Henry Wheaton, whom he assisted in the reports that bear Wheaton's name. The 1st volume of the U. S. circuit reports that bear his own name was published under his supervision, and there has been a posthumous volume; and in 1830, in connection with John Duer, he published "Practice in Civil Actions and Proceedings in the State of New York." In 1850 he was elected a judge of the superior court, and held the office till his death. While upon this bench he sustained in an elaborate decision, in a case involving the title to 8 slaves, the constitutionality of the statute of the state of New York that liberates the slave when brought by his owner within the state.

PAINE, Robert Treat, an American statesman, and a signer of the declaration of independence, born in Boston, March 11, 1731, died there, May 11, 1814. He entered Harvard college at the age of 14, and after graduating studied theology, and acted in 1755 as chaplain of the troops on the northern frontier. Subsequently, after a visit to Europe on mercantile business, he studied law, supporting himself meanwhile by teaching school, and after being admitted to the bar established himself in Boston. Having removed to Taunton, he was a delegate from that town in 1768 to the convention called by leading men in Boston, after the dissolution of the general court by Gov. Bernard for refusing to rescind the circular letter to the other colonies. In 1770 he came more prominently into public life by conducting, in the absence of the attorney-general, the prosecution against Capt. Preston and his men for firing on the inhabitants of the city, and by his management of the case added much to his reputation. In 1773, and again in 1774, he was chosen as a representative from Taunton to the general assembly of Massachusetts, and in the latter year was made a delegate to the continental congress. In 1775 he was reëlected, and was appointed one of the committee of three deputed to visit Gen. Schuyler's army on the northern frontier. He was a delegate to the congresses of 1776, 1777, and 1778, and occupied at the same time important stations in the government of Massachusetts, being in 1777 speaker of the Massachusetts house of representatives, and attorney-general of the state. In 1779 he was a member of the executive council, and was a delegate to the convention, and one of the committee which formed the constitution of the commonwealth. When, in October of the following year, this constitution was adopted, and the government organized according to its provisions, Mr. Paine was chosen attorney-general, and held that office until 1790, when he became a judge of the supreme court. In 1804 he resigned on account of deafness and infirm health. The same year he was a state councillor, but shortly afterward retired from public life. The strictness with which he performed the functions of attorney-general gained him a reputation for undue severity. He was one of the founders of the American academy, established in Massachusetts in 1780.—Robert Treat, jr., an American author, son of the preceding, born in Taunton, Mass., Dec. 9, 1773, died in Boston, Nov. 13, 1811. His name was originally Thomas Paine, but in 1801 it was changed by act of the legislature to that of his father, when he remarked that he now had a "Christian" name, in allusion to Thomas Paine the infidel. He entered Harvard college in 1788, and while there was distinguished for his familiarity with the ancient languages and his literary abilities, especially in poetry. After his graduation he entered the counting house of Mr. James Tisdale, but soon left it, and in Oct. 1794, started a semi-weekly newspaper called the "Federal Orrery." While in mercantile business, according to his biographer, "he made entries in his day book in poetry, and once made out a charter party in the same style;" and at the same time he contributed verses to the "Massachusetts Magazine," and subsequently wrote theatrical criticisms. In Feb. 1795, he married a Miss Baker, an actress, and this produced for a time a breach between himself and his father. In 1795, upon taking the degree of A.M., he delivered a poem on "The Invention of Letters," which brought him in $1,500, being more than $5 a line. The following year he sold his newspaper, which from his neglect of editorial duties had become unprofitable; and the same year a poem entitled "The Ruling Passion," delivered before the Phi Beta Kappa society, yielded him $1,200. In 1798 he wrote the celebrated song of "Adams and Liberty," for which he received $750, or more than $11 a line; and in 1799 he delivered an oration on the first anniversary of the dissolution of the alliance with France, for which he was complimented by Washington. Soon afterward he gave up his position as "master of ceremonies" at the theatre, an office which had been created for him in the days of his disagreement with his father, and his exclusion from fashionable society in consequence of his marriage. Turning his attention to law, he entered the office of Mr. (afterward Chief Justice) Parsons at Newburyport, and there delivered, Jan. 2, 1800, a eulogy on Washington. Admitted to the bar in 1802, he commenced practice in Boston with great success; but soon resuming his old acquaintance with the players, and his former unsettled mode of life, he passed his last days in misery and destitution. His works were collected and published by Mr. Charles Prentiss in 1812 (1 vol. 8vo., Boston).

PAINE, Thomas, an American political writer, born at Thetford, county of Norfolk, England, Jan. 29, 1737, died in New York, June 8, 1809. At the age of 13 he was taken from school, to assist his father, a Quaker, at stay making. About 1755 he shipped in the privateer King of Prussia; and in 1759 he settled at Sandwich, worked at his trade, preached occasionally as a dissenting minister, and married. The following year he removed to Margate, where his wife died. In 1764 he was in the excise in his native town; but being dismissed from office in 1765, he went to London, where he obtained employment as teacher in an academy, devoting his leisure moments to the study of the natural sciences. In 1766 he was restored to the excise. He removed to Lewes, in Sussex, in 1768, where he took a second wife in 1771, and carried on business as grocer and tobacconist. In 1772 he wrote "The Case of the Officers of the Excise," a pamphlet which introduced him to Oliver Goldsmith. He failed in business, and his effects were sold in April, 1774; was dismissed a second time from the excise; separated from his wife in May, and went to London, where he became acquainted with David Williams, the noted political and deistical writer, by whom he was introduced to Benjamin Franklin, then in London, who advised him to try his fortunes in the new world. Paine accordingly sailed for America, Oct. 1, 1774, carrying with him recommendatory letters from Dr. Franklin to Bache, his son-in-law, and others, and arrived in Philadelphia in the beginning of December. In Feb. 1775, Mr. Aitkin of Philadelphia employed him as editor of the "Pennsylvania Magazine," the first number of which had been issued the preceding month. His contributions to this work appeared with the signature "Atlanticus," and were much commended at the time. In Sept. 1775, he commenced his "Common Sense," which is said to have "severed the last link that bound the colonies to the mother country." On Oct. 18 he published in Bradford's "Pennsylvania Journal," "Serious Thoughts" upon slavery, &c., in which "he hesitates not a moment to believe that the Almighty will finally separate America from Britain," and hopes, when this is accomplished, "our first gratitude may be shown by an act of continental legislation which shall put a stop to the importation of negroes, soften the hard fate of those already here, and, in time, procure their freedom." The celebrated Dr. Rush of Philadelphia was so pleased with this essay that he sought an introduction to the author; but he did not, as is often asserted, suggest to Paine the idea of writing "Common Sense." At that time there was a great scarcity of gunpowder in the American colonies, Great Britain having totally prohibited its exportation to her rebellious subjects. Paine turned his attention to chemistry; set his talents to work to discover some cheap and expeditious method of making saltpetre; published his experiments for the benefit of the patriots in the Philadelphia journals; and formed an association whose object was to supply, gratuitously, the national magazines with powder. On Jan. 10, 1776, when "a reconciliation with the mother country was the unanimous wish of almost every American," a pamphlet, called "Common Sense," advocating the establishment of a republic of free and independent states, "burst upon the world," in the language of Dr. Rush, "with an effect which has rarely been produced by types and paper, in any age or country." It was immediately denounced as "one of the most artful, insidious, and pernicious of pamphlets." John Dickinson, a stanch supporter of the American cause, and author of the "Farmer's Letters," opposed the idea of independence, in a speech, as a member of the continental congress. The author of "Plain Truth," one of the many replies to "Common Sense," thought that "volumes were insufficient to describe the horror, misery, and desolation awaiting the people at large in the siren form of American independence." Dr. William Smith, provost of the university of Pennsylvania, said in his "Cato's Letters," published in March, 1776: "Nor have many weeks yet elapsed since the first open proposition for independence was published to the world; it certainly has no countenance from congress," and "is only the idol of those who wish to subvert all order among us and rise on the ruins of their country." Soon after independence was declared, Paine volunteered into Gen. Roberdeau's division of the flying camp; and when their term of service expired, he went to Fort Lee, serving during that trying campaign as aide-de-camp to Gen. Greene. When Pennsylvania was distracted by parties on account of her constitution, Paine endeavored with his pen to bring the controversy to an end. He was not one of the authors of the Pennsylvania constitution of 1776, as he says, in a communication to the "Pennsylvania Packet," of March 18, 1777, that he "had no hand in forming it; nor did he know of its contents till he saw it published." On Dec. 19, 1776, when the stoutest hearts failed, Paine published his first "Crisis," which began with that phrase since so often quoted: "These are the times that try men's souls." This aroused the drooping ardor of the people; it was read at the head of every regiment; and the first fruit of the reanimated enthusiasm it produced was the battle of Trenton, 6 days after. "The Crisis," of which some 18 numbers were published, appeared at irregular intervals until peace was established. In April, 1777, on motion of John Adams, Paine was elected secretary to the committee on foreign affairs. The following winter he offered his services to the naval board at Trenton, to make one of a party of 4 or 5 that would set fire to the enemy's fleet in the Delaware. About this time (the winter of 1778), in a conversation with William Henry of Lancaster, Penn., he made the first proposition ever put forth in America for the application of steam to navigation. In Jan. 1779, while engaged in the preparation of a "History of the American Revolution," he commenced a series of letters in the "Pennsylvania Packet," denying the validity of Silas Deane's claims upon the American government; for doing this he was censured, unheard, by a faction in congress, and on the 8th of that month resigned his office of secretary. That the action of congress was disapproved, and Paine's conduct in exposing Deane was appreciated, may be seen by the fact that the annual town meeting held in Philadelphia in July, and presided over by Gen. Roberdeau, unanimously resolved to "support and defend Thomas Paine;" and in the following November Pennsylvania gave him a proof of her confidence, by electing him clerk to the general assembly. In 1780 he was dissuaded by Gen. Greene from going to England, where he intended to circulate his republican sentiments, hoping thus to create a panic in that country, and more effectually aid the cause of America. Early in June of that year, a letter was received by the assembly of Pennsylvania, from Gen. Washington, stating that, notwithstanding his confidence in the attachment of the army to the cause of the country, he feared that their distresses would soon cause mutiny and discontent in the ranks. This letter was read by Paine, as clerk. A despairing silence pervaded the hall. At length one of the members said that it was in vain to contend any longer, and they might as well give up first as last. To dissipate the gloom, a more cheerful member moved an adjournment, which was carried. Paine, who knew that the assembly had neither money nor credit, felt that the voluntary aid of individuals could alone be relied upon. He accordingly wrote to Blair McClenaghan, a merchant of Philadelphia, explaining the urgency of affairs, and enclosed in the letter $500, the amount of salary due him as clerk, as his contribution toward a relief fund. McClenaghan called a meeting next day and read Paine's letter; a subscription list was immediately circulated, and in a short time £300,000 Pennsylvania currency was collected. With this as a capital, the Pennsylvania bank (afterward expanded into the bank of North America) was established for the relief of the army. On July 4, 1780, the degree of A.M. was conferred upon Paine by the university of Pennsylvania. In Feb. 1781, he accompanied Col. Laurens to France, to negotiate a loan from that government, and arrived home Aug. 25, with $2,500,000 in silver—a great help to Washington in the movement southward, which ended in the capitulation of Yorktown. In 1782 appeared his "Letter to the Abbé Raynal." The next year he accepted an invitation from Gen. Washington to partake of his hospitalities at Rocky Hill; and the successful experiment while there of setting a neighboring creek on fire, as performed by Gen. Washington, assisted by Paine, Gen. Lincoln, and Col. Cobb, is described in an essay on "The Cause of the Yellow Fever," which Paine published in New York in 1806, at the request of Thomas Jefferson. In Jan. 1785, he was elected a member of the American philosophical society, and in the following October received $3,000 from congress as a testimonial of their appreciation of his services. His "Dissertations on Government" appeared in 1786. On April 26, 1787, he sailed for France, where he was cordially received by Buffon, La Rochefoucauld, De Chastellux, Malesherbes, the abbé Morellet, and many other eminent men. He submitted the model of an iron bridge which he had invented to the academy of sciences at Paris, whose opinion of its merits was decidedly favorable. In September he visited his mother in England, and wrote the "Prospects of the Rubicon." In 1788 he resided at Rotherham in Yorkshire, superintending the erection of his iron bridge, of which Stephenson says: "If we are to consider Paine as its author, his daring in engineering certainly does full justice to the fervor of his political career; for successful as the result has undoubtedly proved, want of experience and consequent ignorance of the risk could alone have induced so bold an experiment; and we are rather led to wonder at than admire a structure which, as regards its proportions, and the quantity of material employed in its construction, will probably remain unrivalled." This bridge was put up for exhibition in an open field at Paddington, and was afterward taken down and the materials used in the one which now spans the river Wear at Sunderland. Paine was in Paris when the Bastile was demolished, the key of which Lafayette gave him for presentation to Gen. Washington. It is now among the relics at Mount Vernon. Paine, who had partaken of Edmund Burke's hospitality at Beaconsfield, corresponded with him from Paris, not knowing that "the pensioner" was preparing his "Reflections upon the French Revolution," which appeared in Oct. 1790. Among the many replies to the "Reflections," by Lord Stanhope, Mary Wollstonecraft, Catharine Macaulay, Sir James Mackintosh, and others, Thomas Paine's "Rights of Man" was the only one that really engaged the public attention. The first part of that work was dedicated to Washington, and appeared in March, 1791; the second part, dedicated to Lafayette, was published in Feb. 1792. Baine, in his "Wars of the Revolution," says: "Editions were multiplied in every possible form and size; it was alike seen in the hands of the noble and of the plebeian, and became at length translated into the various languages of Europe." It is supposed that at least 100,000 copies of the "Rights of Man" were published. In 1792 he gave the revolutionary society of England an order on Jordan, his publisher, for £1,000, to be applied in the furtherance of their objects. In Sept. 1792, a deputation from France announced to Paine his election to the French national convention from the department of Calais. He immediately left England to take his seat, meeting with a triumphant reception in Paris. The following December his trial for sedition took place in London, and, not appearing to receive his sentence, he was outlawed. In the national convention Paine generally voted with the Girondists. He was associated with Brissot and Condorcet on the committee that framed the constitution of 1793. As a member of the convention, he advocated the trial of Louis XVI.; but when the sentence of that unfortunate monarch came up for discussion, Madame de Staël says: "Thomas Paine alone proposed what would have done honor to France if it had been accepted—the offer to the king of an asylum in America." In Dec. 1793, the convention passed a decree for the expulsion of all members who were foreigners by birth. This was soon followed by another for the imprisonment of all persons in France born in England.

Under this decree, Thomas Paine was arrested and thrown into the Luxembourg. On his way to prison he placed the manuscript of the first part of his "Age of Reason" in the hands of his friend Joel Barlow, the American poet. His confinement lasted from January to November, 1794. When he was first arrested, the Americans in Paris went in a body to apply for the release of "the apostle of liberty in America," as they styled him; but they were unsuccessful. A few months after the death of Robespierre, James Monroe, the American minister in France, procured his liberation, and tendered him a home in his own family, which Paine enjoyed for about 18 months. In Dec. 1794, he resumed his seat in the national convention, upon the invitation of its members. In 1795 the second part of the "Age of Reason" appeared. This work is denounced as atheistical; but it expressly inculcates a belief in God. Joel Barlow, in a letter to Cheetham in 1809, said that "Paine's religious opinions were those of three fourths of the men of letters of the last age, and of nearly all those of the present." In the "Age of Reason" he says: "I believe in one God and no more; and I hope for happiness beyond this life. I believe in the equality of man; and I believe that religious duties consist in doing justice, loving mercy, and endeavoring to make our fellow creatures happy." He then states what he does not believe, and his reasons therefor. In April, 1796, he published his essay "On the English System of Finance," and in the following July his "Letter to General Washington," in which he accuses him of ingratitude in not attempting to procure his liberation from the Luxembourg. "Agrarian Justice," and a "Letter to the People and Armies of France," appeared in 1797. This year he assisted Larevellière-Lepaux and Haüy in founding the society of theophilanthropists. When Napoleon meditated a descent upon England, by means of gun boats, he secured the services of Thomas Paine to establish, after the conquest, a more popular government. In 1802 Paine resolved to return to the United States. In this republic, in former times, he had met with the highest respect; the most prominent men had paid homage to the influence of his pen; and his eminent services had been freely acknowledged. New York had presented him, during the revolution, with the Devoe estate at New Rochelle, Westchester co., consisting of 300 acres of valuable land, with the necessary buildings. In consideration of the fact that "Thomas Paine did, during the whole progress of the revolution, voluntarily devote himself to the service of the public, without accepting recompense therefor; and, moreover, did decline taking or receiving the common profits which authors are entitled to on the sale of their literary works, but relinquished them for the better accommodation of the country, and for the honor of the public cause," Pennsylvania gave him £500. New Jersey gave him a small estate at Bordentown. Virginia was about to grant him a tract of land valued at upward of £4,000, when he published his "Public Good," denying her claims to the north-western territory; and though Washington, Madison, Lee, and Patrick Henry exerted themselves in his favor, he lost the grant by a single vote. He arrived at Baltimore, after an absence from the United States of 15 years, on Oct. 30, 1802. Thomas Jefferson invited him to Monticello, where he left a favorable impression. At Washington he was cordially received; and while there he wrote his "Letters to the People of the United States." On his way to New York he was grossly insulted by the federalists at Trenton. His admirers in New York and Philadelphia honored him with public dinners; his enemies thought that he and Jefferson "should dangle from the same gallows." He finally settled in New York, occasionally passing a few months on his farm at New Rochelle. Just before his death he requested to be interred in a Quaker burial ground; but the Quakers refusing to permit this, his remains were taken to New Rochelle and there buried on his farm. In 1819 William Cobbett, the English reformer, violated the grave and took his bones to England, where they are now in the hands of a committee, who intend to honor them with a public funeral at some future day. A monument was erected to his memory in 1839 within a few feet of the spot where he was originally buried.—In stature, Thomas Paine was about 5 feet 10 inches, and broad-shouldered. He was plain but dignified in his appearance. He wore his hair in a queue, with side curls, and powdered. His eyes were full and brilliant, and singularly piercing. In his manners he was easy and graceful. Though not a fluent speaker, among his friends and in private company his conversation was exceedingly fascinating. In mixed company he said little. The principal portraits of Thomas Paine, known in this country, are Charles Wilson Peale's, painted about the year 1780, and Romney's, painted in England in 1792, and engraved by Sharp; there is also a plaster bust taken by Jarvis in New York in 1805, while Paine resided with him. As a writer, Thomas Paine was always forcible, and often eloquent; his style, manner, and language were well calculated to interest the passions, and rouse the active powers of human nature. Botta, the historian, doubted whether any "writer ever possessed in a higher degree the art of moving and guiding the multitude at his will;" and Jefferson acknowledged that "no writer has exceeded Paine in familiarity of style, in perspicuity of expression, happiness of elucidation, and in simple and unassuming language." Among the biographers of Paine the most prominent are George Chalmers, F.R.S. (under the assumed name of Francis Oldys, 1791); William Cobbett (1796); James Cheetham (New York, 1809); Clio Rickman (1819); W. T. Sherwin (1819); and Gilbert Vale (New York, 1842).—The most complete edition of Thomas Paine's works is that by J. P. Mendum (Boston, 1856), which however contains several articles not by him.

PAINESVILLE, a village and the capital of Lake co., O., on Grand river (crossed near here by a stone viaduct of 4 arches, 800 feet long and 83 feet high), 3 m. from the best natural harbor on Lake Erie, and on the Cleveland, Painesville, and Ashtabula railroad, 29 m. N. E. from Cleveland; pop. in 1860 within the corporate limits, 2,624. It contains a court house, gaol, 2 flouring mills, 2 founderies, 2 engine factories, 2 tanneries, a bank, 3 hotels, 6 churches, a large union school, the Lake Erie female seminary, and 2 weekly newspaper offices. The business portions have been entirely rebuilt of brick within 3 years, having been destroyed by 3 disastrous fires.

PAINTERS' COLIC. See Colic, and Lead.

PAINTING, the art of representing objects by means of light and shade or color upon an even surface. Whatever importance such objects possess for the purposes of science, to the painter they present five qualities or elements, as follows: shape (or form), size (or quantity), light and shadow (or gradation), local color (or hue), and texture. No object in nature is without these distinctive characteristics, and no object in nature has other than these for pictorial treatment. Hence a painting is meritorious in the degree that it exhibits these traits with accuracy. Of the various theories respecting the origin of the art, that seems the most natural which makes it coeval with the invention of writing. Goguet in his *Origine des loix* notices the fact that the earliest people made their first essays in writing by representing to the eye the objects they wished to impress upon the mind; and so far as observation has demonstrated, this remark holds good of all primitive races. No date can be assigned to the commencement of this practice, and, as Haydon has remarked, "in what country painting first originated is nearly as difficult to discover, as it is to find a country where it never existed at all." Dismissing for want of authentic materials any inquiry into the progress of the art among the Chinese, the Hindoos, the Persians, the Assyrians, the Phœnicians, and their cognate races, by whom it was probably never developed beyond the rudest stages, we may commence the history of painting with Egypt, where it can be traced back to a very remote antiquity. Egyptian paintings are comprised in three classes, those on the walls of tombs and temples, those on the cases and cloths of mummies, and those on papyrus rolls, the first being the most numerous and meritorious, although none of them can be properly considered works of art, but rather the symbolic writings which record the social, religious, and political life of the people. Both sculpture and painting were originally practised in conjunction, the latter being the subordinate art, and the earliest employment of the painter was to color statues, bass-reliefs, and intaglios or sunk reliefs. To this succeeded the execution, under a strict code of conventional rules prescribed by the priesthood, of those elaborate works which now afford such vivid illustrations of the manners and customs of the Egyptians. According to Pliny, painters and sculptors were forbidden to introduce any change or innovation into the practice of their respective arts, or in any way to add to them; and hence the monotonous character of Egyptian art, the perpetual recurrence through thousands of years of similar types of form, and the absence of any progressive development such as may be witnessed in the productions of other races. It was, however, doubtless owing to this dependence upon established canons that the artists were enabled to impart to their works that character of stability and unity of purpose which so impresses the modern traveller on the banks of the Nile. The technical merits are slight. The imitation of nature was never carried beyond an outlined diagram arbitrarily colored; of ideal beauty they are utterly destitute; and perspective, chiaroscuro, and the science of composition seem to have been unknown. Men and women were generally painted red, animals brown, birds blue and yellow, and other objects according to similar arbitrary rules, in utter disregard of their natural appearance. Sometimes a varnish of glue or resin was applied to the finished picture, which may account for the freshness which the colors still retain. The most flourishing period of Egyptian art was that from about 1400 B. C. to the Persian conquest in 525 B. C., after which a slow but gradual decline is observable, until in the early part of the Christian era the art of the Greeks becomes predominant.—In common with other arts, painting appears to have been established in Greece mainly through communication with Egypt and Asia, and previous to the commencement of the 5th century B. C. it was chiefly ornamental or representative, its application being limited to the decoration of temples, the coloring or imitation of bass-reliefs, and similar purposes. With the Persian wars, the great promoter of intellectual activity among the Hellenic races, it began to assume its peculiar Greek character, and to be practised as an independent art; and from that era until after the death of Alexander it received its most perfect development. The whole period preceding the Persian invasion may be said to constitute the mythic age of Greek art, during which a slow but gradual approximation to excellence was observable, the motive for which must be traced to the character of the people and of their religion. A love of beauty was with the Greeks a principle of religion; their deities were models of physical excellence, and their own habits tended to bring the human form to a similar degree of perfection. Hence, when painting and sculpture were made to subserve the cause of religion by representing to the eye the material forms of Greek mythology, the artist strove to clothe them with the attributes of majesty, loveliness, or grace; and this effort, continued through successive ages among a people of remarkable intellectual endowments, developed art from its original Egyptian rudeness and arbitrary conventionalism into life, motion, and liberty. The Egyptian artist reproduced for ages a fixed type of the human figure, while his Greek contemporary aimed at an ideal perfection, which made him in a measure the arbiter of form. With the arrival of Polygnotus of Thasos in Athens, 463 B. C., commences the authentic history of Greek art, and the supremacy of Athens as the capital of the arts, although few of the great painters of Greece were natives of that city. Aristotle calls him ἠθογράφος, the painter of character, and he is mentioned by other Greek writers as one of the most distinguished painters of antiquity in the essentials of form, expression, and color. He was employed to decorate various public buildings in Athens, and also executed 3 famous pictures illustrating Homeric episodes for the Lesche, a public hall near the temple of Apollo at Delphi, which 600 years later excited the wonder and admiration of Pausanias. These works, however, can scarcely be called historical in the modern acceptation of the word, as the events and objects were indicated rather than represented, and no attempt was made at dramatic development in composition or local truth and circumstantial detail of execution. Other celebrated painters of the Athenian school, of which Polygnotus is considered the founder, and contemporary with him, were Dionysius of Colophon, an excellent portrait painter, of whom Aristole says "he painted men as they are;" Micon, distinguished for his horses; Panænus, and Onatas of Ægina. Somewhat later flourished Apollodorus, who about 404 B. C. developed the principles of light and shade. According to Pliny, he was the inventor of tone. Painting, which had hitherto been sculpturesque in its character, now took a more dramatic range, and to the school of Athens succeeded that called the Asiatic or Ionic, of which Zeuxis, Parrhasius, and Timanthes were the chief exemplars. It constitutes what may be called the second phase of Greek painting, the school of Polygnotus forming the first, and was characterized by more unity of sentiment and action, and a close imitation of the local and accidental appearances of objects. Zeuxis and Parrhasius excelled in form and in the representation of material beauty, and, if inferior in simplicity and expression to Polygnotus, greatly surpassed him in the technical parts of their art. The "Helen" of Zeuxis was one of the wonders of ancient art, and the numerous pictures by Parrhasius of deities and heroes attained a high importance. Eupompus of Sicyon, the last very distinguished painter of this period, founded about the time of Philip of Macedon the Sicyonian school of painting, characterized by scientific cultivation, artistic knowledge, and great ease and accuracy in drawing, and which constituted the third and last phase of Greek painting, or, as it has been called, the epoch of refinement. The form now became paramount over the essence, and technical excellence reached its limit. The chief painters of this time were Pamphilus, chiefly distinguished as a teacher of the theory of his art; his pupils, Apelles, Melanthius, and Pausias, the first preeminent not less for grace or beauty of form than for his power in sublime subjects, the last one of the first to practise encaustic painting; Protogenes of Rhodes, a rival of Apelles; Nicias, who excelled in light and shade; Euphranor, excellent in many departments; Nicomachus and Aristides of Thebes, the former remarkable for boldness of execution, and the latter, according to Pliny, the greatest master of expression in all Greece; Theon of Samos, and Athenion of Maronea, beside many others, extending over a period of upward of a century. Of these the most famous was Apelles, whose celebrated contest of drawing with Protogenes is frequently cited by ancient critics as an illustration of the degree of technical skill acquired by each artist. From the time of Alexander art rapidly deteriorated, and subsequent to the middle of the 3d century B. C. scarcely another name of note occurs. In the place of mythological or epic stories, the artists painted caricatures, low or domestic subjects of the class called *genre*, and obscene pictures, or contented themselves with reproducing feeble copies of the works of their predecessors. At the period of the Roman conquest painting exhibited little vitality, and the spoliation of public buildings and galleries to adorn the porticos and temples of Rome tended to crush the art everywhere in Greece. Greek paintings were executed in distemper, with glue, milk, or white of egg, and in encaustic, upon wood, clay, plaster, stone, parchment, and during the latest period upon canvas. Wood panels with a ground of plaster were most commonly employed, and in the late stages of the art fresco painting attained some perfection. Various species of varnish appear to have been known, and Pliny says that Apelles was indebted for his brilliant coloring to a liquid called *atramentum*, with which he covered his pictures; whence Sir Joshua Reynolds has concluded that he was a master of the art of glazing. Down to the time of Apelles 4 principal colors were used, white, red, yellow, and black, from which all the necessary hues and tints were composed. The "Aldobrandini Marriage," now in the Vatican, supposed to resemble a picture by Echion of the Sicyonian school, the "Achilles discovered by Ulysses" and "Achilles surrendering Brisëis," both found at Pompeii, and a few others, although probably feeble imitations of older works, sufficiently attest the high character of Greek art in its prime. The mosaic of the *casa del Fauno* at Pompeii, representing the "Battle of Issus," now in the Museo Borbonico in Naples, is the finest ancient picture extant, with respect to composition, foreshortening, and perspective.—Of Etruscan painting, as exemplified by specimens found in sepulchral chambers at Tarquinii, Cære, and elsewhere, little need be said. It is essentially Greek in its style and characteristics, and to a limited extent shows similar stages of development and decay.—The Romans received their art directly from Greece, and, though eager and intelligent collectors of the works of the early masters of that country, had no independent school of painting. There does not seem to have been a single Roman painter of eminence; but inferior Greek artists abounded in the Italian peninsula, and particularly in the capital, and the best Roman paintings were probably executed by them in the degenerate style which marked the decline of the arts in Greece. These consisted chiefly of portraits, ornamental or decorative work, and copies of the masterpieces of antiquity. It is worthy of remark, however, that the Romans were the first to cultivate portrait painting as a distinct branch of the art. To such a depth of degradation did painting finally descend among them, that it was practised chiefly by slaves, and the painter was estimated by the quantity of work he could do in a day. But the treasures of art accumulated in Rome by successive generals and emperors, from the time of Marcellus downward, made the city, as Cassiodorus has expressed it, "one vast wonder." Most of these were in turn transferred to Constantinople by Constantine and his successors, and the remainder disappeared in conflagrations or in the disorders which marked the period of the exarchate. Not one authenticated painting by any of the great masters of antiquity is now known to be in existence. In one respect the practice of painting in Italy differed from that of Greece. In the latter country the art was essentially religious, and was mainly confined to temples and public buildings; but the Romans early familiarized it with the household, and no dwelling, whether palatial or strictly domestic, was considered complete unless every apartment or portion had its painted decorations signifying the use for which it was designed.—While art in its ancient seats was thus passing through the last phases of what has been called its "age of decrepitude," Christianity had taken root in many parts of the world; and although the new religion, unlike the old, needed no direct alliance with art, and its followers, in their detestation of paganism, denounced the carvers of graven images as servants and emissaries of Satan, the influence of so many previous ages of civilization could not be at once extinguished, and the early Christians before the time of Constantine attempted the visible representation of sacred personages and actions, by means of symbols and mystic emblems. Thus the lamb typified Christ; the vine and its branches, Christ and his disciples; the fish, baptism; the ship, the church; and the cross, redemption. The art even to this limited extent, however, was practised not for the pleasure it would excite, but as a means of inculcating religious principles; and when, as Christianity gained converts, it became safe to venture beyond the limits of mere symbol, and to depict Christ as the Good Shepherd, care was taken to eschew the beauty of features and body lavished by pagan artists upon the representations of their deities. Indeed, while Jewish converts preponderated in the early church, the Saviour was represented, on the authority of certain passages in the Old Testament, as devoid of all beauty, "not like the gods of the Pantheon catching the eye by outward attractions, but conquering the heart by the power of his word." It was not until the close of the 8th century that Adrian I. decided, in a papal bull, that Christ should be represented with all the attributes of divine beauty which art could lend him. Nearly a century previous, in 692, the council of Constantinople had authorized the direct human representation of the Saviour in place of the symbolical. The most interesting monuments of Christian art during the first 8 centuries are to be found on the walls or ceilings of the catacombs of Rome. In the catacomb of St. Calixtus were discovered many representations of scriptural stories, parables, and symbols, intermingled occasionally with some of the more innocent pagan allegories, and also a portrait of Christ as the Good Shepherd, the earliest known to have been painted, and which probably formed the type for others. Kugler ascribes to these works "much grandeur of arrangement" and "a peculiar solemnity and dignity of style." As distinguished from pagan works of the same or an earlier period, they may be said to exhibit more spirituality in the conception of the human form, holiness of expression and strength of character being preferred to beauty of features or body, and a strong predilection for natural objects, as animals, leaves, or flowers. When the establishment of Christianity by Constantine enabled the pious decorators of the early church to emerge from the gloom of the catacombs, they transferred their labors to the numerous edifices dedicated to the new religion. But before art had time to attain a healthy expansion under the new influences which were at work, or to assume a distinctive form, civil commotions and barbaric invasions intervened to check its development in Italy, and in the 6th century Constantinople became its principal seat. Mural painting in fresco or distemper now gave way to mosaic work, and for 4 or 5 centuries the most interesting remains of pictorial art are the mosaics in the churches and the miniature illuminations of Bibles and other sacred books. (See MOSAIC, and MINIATURE PAINTING.) During the 8th and 9th centuries the iconoclasts of the eastern church pursued a systematic destruction of works of art; but notwithstanding the disfavor into which Greek artists and their works thereby fell, Constantinople remained from the 7th to the 13th century the great capital of the arts, and during that period the Byzantine style was predominant in every branch of art which the degraded taste of man permitted to be cultivated. Byzantine painting was practised almost exclusively for religious purposes, and about the commencement of the 9th century assumed a hierarchical stiffness of type which has descended unaltered to the present day, although genuine Byzantine pictures are now produced only in a few places in Russia and Greece. The characteristics of the school are length and meagreness of limbs, stiffness of figure, features almost void of expression, long and narrow eyes, a disagreeable blackish green coloring of the flesh, various conventional attitudes and accessories having no foundation in nature, and a profusion of gilding. The colors, though bright, were raw and crude, and commonly painted on a gold background. The painters were monks or persons connected with monasteries, who formed a sort of perpetual craft or guild for the manufacture of pictures; and the subjects were almost as fixed as the style, consisting of the Madonna and child throned, and representations of sacred history or allegory.—The capture of Constantinople by the Venetians in 1204, by promoting a greater intercourse between the Byzantines and Italians, is considered to have given the first impulse toward the revival of the arts in Italy and the West. Many Byzantine painters passed into Italy and Germany, carrying with them their technical methods and their types of form and color, which were followed more or less servilely by the Italians who studied under them; and at Venice, Pisa, and Sienna were planted early in the 13th century the germs of what subsequently became the leading schools of Italy. But while in the eastern empire the influence of an expiring faith was still manifest in the social relations, the literature, and the art of the people; in Italy, after centuries of turmoil, a new and vigorous civilization, largely impregnated with the Gothic element, but inspired and directed by Christianity alone, had appeared, under which it was impossible that art should not show a new development. The artist, sharing in the religious fervor with which every occupation was pursued, painted for the glory of Christianity and the good of his fellow men, and, finding the shrunken and withered forms of the Byzantine school insufficient for the purposes of his art, was led to a closer imitation of nature. One by one the familiar conventionalisms, which centuries of use had sanctified, were thrown off by bold innovators, until in the early part of the 16th century the culminating glory of the art was reached. The successive steps, however, were slow, with long intervals between, and not until the commencement of the 14th century can painting be said to have freed itself in any considerable degree from its Byzantine trammels. Of the two arts, sculpture, under the lead of Nicola Pisano, the greatest artist of the 13th century, considerably preceded painting in the order of development. The painters were hampered by a mode of treatment handed down to them for centuries, and from which it was difficult at once to emancipate themselves; while the sculptors, ignorant as yet of the marbles of the Greeks, were obliged to employ as models the every-day objects which surrounded them. Hence of necessity there grew up among the latter a system of observation and study of nature which soon gave an original character to their works.—To Giovanni Cimabue, of Florence, who flourished between 1240 and 1300, it has been customary to ascribe the revival of painting in Italy, although Giunta da Pisa and Guido da Siena, who preceded him, had already given some indication of independence of feeling. Tuscany, however, was the seat of this revival, and for upward of two centuries the Tuscan schools maintained their ascendency in Italy. Neither of these artists advanced much beyond the Byzantine traditions, and the chief merit of Cimabue undoubtedly consists in the fact that he discovered and fostered the genius of Giotto di Bondone, the first great painter of modern times, and the true regenerator of the art. With the commencement of the 14th century, the date of this master's first works of importance, the history of Italian painting properly commences; and in tracing its development each of the principal schools will be noticed in succession. The subject has already been treated at some length under the head of Fresco Painting, which formed the most important branch of the art in the 14th and 15th centuries; and for the characteristics and chief productions of individual painters the reader is referred to their biographies in this work.—The Tuscan schools, comprising the Siennese, Pisan, and Florentine, were in the 15th century merged in the last named, of which Giotto was the founder. Previous to his time the only real advancement in painting was the substitution of the human figure for its mere type or symbol. Giotto made the second great step of progress by rejecting the dark coloring which his predecessors had retained from their Byzantine models, and introducing that which was paler and more natural. His compositions also exhibit a better idea of grouping, and his figures more action and variety of positions, the result doubtless of the new ideas of form suggested by the works of Nicola Pisano. He painted in the chief cities of Italy from Naples to Milan, and his mature works, such as the frescoes in the chapel of the Arena at Padua and in the Franciscan church at Assisi, retain no traces of the Byzantine style. His followers and imitators, forming what has been called the *scuola Giottesca*, for the most part confined themselves to the reproduction of the models left by their master, but some pursued the path he had opened to them with results beneficial to the progress of art. Of the latter class, Taddeo Gaddi and Andrea Orcagna have been considered superior in dignity and grandeur to Giotto himself. Contemporary with Giotto, and scarcely less famous, were Simone Memmi of the Siennese school, the characteristics of which seem to have been force of expression and a tendency toward idealism, and Buffalmacco, of humorous memory, whose exploits as related by Boccaccio have survived almost every relic of his pencil. Other painters of the period were Angelo Gaddi, the son of Taddeo; Tommaso di Stefano, called Giottino; Spinello Aretino; Cennino Cennini, author of the oldest Italian treatise on painting; and Francesco da Volterra. None of these, however, advanced much beyond the point reached by Giotto. At the close of the century the influence of Giotto was discernible not in Tuscany alone, but throughout Italy and even beyond the Alps. But painting was nevertheless in a very undeveloped state. Portraiture was rarely practised, landscape painting as a branch of art was unthought of, and no true standard of form had been established. The purposes to which painting were applied were almost wholly of a religious character, and when subjects from pagan mythology or classic history were introduced, it was to illustrate the truth of Christian revelation or the doctrines of moral theology. Believing that they shared with the clergy the task of instructing the people, the artists aimed at a truthful representation of their subject rather than at technical skill; and on this account their art, imperfect and conventional as it was, has an impressiveness of character which the works produced during the splendid era of Raphael fail to present. In the 15th century painting advanced very considerably, and toward its close Florence, under the munificent sway of the Medici, became one of the most splendid art capitals of any age. Pietro della Francesca and Paolo Uccello developed the science of perspective, and Masolino da Panicale that of chiaroscuro. The productions of Lorenzo Ghiberti, the sculptor of the famous gates of San Giovanni in Florence, also gave new vigor to the imitative principles established by Giotto; and to his influence perhaps the peculiar excellence of Florentine art may be traced. But to Masaccio, who discarded the conventional types of the human form and made his studies directly from life, is due the credit of establishing the great era of the pictorial art of this century; and until near the time of Raphael his conceptions of form remained the standard. Contemporary with or immediately succeeding him were Fra Angelico da Fiesole, less distinguished for any external quality of art than for the deep religious sentiment of his works; Filippo Lippi, one of the earliest painters of the naturalistic as distinguished from the mystical school, as that class of masters has been called who made religion the end and object of their art; Benozzo Gozzoli; Filippino Lippi; Antonio Pollajuolo, the first who studied the dead subject for the purposes of design; Domenico Ghirlandaio, the master of Michel Angelo; Cosimo Rosselli, Sandro Botticelli, Luca Signorelli, Andrea Verocchio, and Andrea Castagno, one of the first who practised oil painting after the manner of the Van Eycks. With Leonardo da Vinci, a master accomplished in many arts beside painting, commences another epoch, in which Masaccio's conceptions of form were combined with dramatic compositions, with local color, and with light and shade, as illustrated in the famous "Last Supper" in the convent of Sta. Maria delle Grazie at Milan. The earnest, simple faith, and the spiritual treatment of the early painters now gave way in a measure to the realistic tendencies of the age. Less was left to the imagination and feelings, and in place of sacred history and legends of the church, pagan mythology, with its sensuous allurements, began to afford subjects to the painter. As in the corresponding period in the history of Greek art, technical excellence was rapidly approaching its highest point, and increasing wealth and luxury multiplied the production of pictures for private purposes. The painter was no longer a public teacher of religion or morals, as in the days of Giotto or Orcagna; and as his public functions were superseded by his private ones, the art began to decline. Undoubtedly, however, the very perfection attained contributed materially to this result. Contemporary Florentine masters of this period were Fra Bartolommeo di San Marco and Andrea del Sarto, both of the highest excellence, and Michel Angelo Buonarotti, preëminent as painter, sculptor, and architect. The latter neglected illusive effects, despised oil painting, and aimed at the expression of life and power through action and movement; and the almost exclusive attention which he gave to the definition of form, the result doubtless of his cultivation of the three sister arts, made the development of physical qualities thenceforth the chief characteristic of the Florentine school. Of the daring heights to which he attained in his efforts toward grandeur of form and sublimity of expression, the frescoes of the Sistine chapel afford a memorable illustration; although here, side by side with his prophets and sibyls, looking "like beings to whom God has spoken and who have never since ceased meditating on the awful voice," are groups and single figures of such startling novelty of expression and action as to constitute a legacy of questionable value to the student of form. His influence was overwhelming in Florence, and almost every artist who came within its reach lost his individuality, and in attempting to follow him only debased art and proved his own mediocrity. Some, however, were excellent painters, including Daniele di Volterra, celebrated for his "Descent from the Cross;" Vasari, the biographer of Italian artists; Sebastian del Piombo; the Zuccari, and Angelo Bronzino. During the first quarter of the 16th century the grand climax of art was reached, and within that period the greatest painters of modern times flourished together, exercising in some sort a reciprocal influence, but each working out his own peculiar aims. Before the middle of the century a steady decline was discernible, not in Florence alone, but all over Italy, Venice perhaps excepted; and as the great masters one by one dropped off, they were succeeded by crowds of servile mannerists, who painted rapidly and carelessly to meet the increasing and not very discriminating demand for pictures, and whose works, even when devoted to sacred subjects, had in them "more of earth than of heaven." "We paint six pictures in a year," says Vasari, "while the earlier masters took six years to a picture;" a remark which his own practice strikingly illustrated. The latter part of the century, however, witnessed a fresh development in the Florentine school, and Ludovico Cardi, called Cigoli, introduced a new style, distinguished by careful drawing and brilliant coloring; but few names of note occur among his followers, except that of Carlo Dolce, a careful painter of female heads. Pietro di Cortona about the middle of the 17th century introduced a florid, ornamental style of fresco painting, the followers of which were called by the Italians the *machinisti*. Little can be said of Florentine painting after this.—Painting seems to have made little progress in Venice previous to the time of Giotto, and during the 14th century no works of any considerable importance were produced. The little island of Murano may be considered the nursery of Venetian art, and the Vivarini, a family of painters who lived there, its first exemplars. Commercial intercourse had familiarized them with the works of German and Flemish painters, the rich and vivid coloring of which was readily adopted by contemporary Venetian artists, although until near the middle of the 15th century they designed with an antique severity borrowed from their neighbors the Paduans. Giovanni and Gentile Bellini, sons of Jacopo Bellini, were the first great artists of the school, as they were among the first in Italy to substitute oil painting for distemper. With a tendency to elaborate finish, and a dry though correct manner, their works are distinguished by sweetness and purity of expression, and afford a foretaste of that rich coloring which subsequently became the chief characteristic of Venetian art, and which reflected the cheerful and festive spirit of the people. With the opening of the 16th century commenced a new epoch in the history of the school, and the genius of two scholars of the Bellini, Giorgione and Titian, created a style in which a bold and decided handling, and a "golden glow" of color, with great truthfulness of detail in landscape, draperies, and other accessories, were marked features. The former died early, but Titian, who long survived his great contemporaries of the early part of the century, reached the summit of his art in history, landscape, and portraiture, and stamped the school of Venice as incontestably the first in color. Aside from portraiture, in which he had no rival, he was perhaps greatest in his representations of the naked female form. Among his imitators were Andrea Schiavone and Alessandro Bonvicino, called Il Moretto di Brescia. In the latter half of the century flourished 3 other painters scarcely less illustrious than Titian, viz., Jacopo Robusti, called Tintoretto, Paolo Cagliari, called Veronese, and Jacopo da Ponte, called Bassano; the first one of the most vigorous and rapid of painters, but unequal in his performances; the second a consummate master of color, delighting in scenes of festive pomp and splendor, with rich costumes and architecture; and the third the earliest and one of the best of the Italian painters of *genre*. The true Venetian style of these masters deteriorated in the hands of their successors, and the subsequent history of the school is unmarked by a single great name, though artists of merit were not uncommon.—Intimately connected with the history of the early Venetian school was that of Padua, to which a fresh impulse was given in the first half of the 15th century by Francesco Squarcione, whose collection of drawings and casts from the antique greatly promoted the cultivation of form, and influenced the art throughout northern Italy. Jacopo Bellini, of Venice, acquired there his peculiar dry manner; and Andrea Mantegna, the greatest painter that had appeared in the north of Italy up to the middle of the 15th century, was its most eminent pupil. The latter, distinguished for his severely classic and statuesque design, founded the Mantuan school, which produced many of the most famous painters of Lombardy.—The Roman school may be said to have sprung directly from the Umbrian, so called from the ancient district of Umbria, within the limits of which its artists practised their vocation. The region was secluded and the inhabitants remarkable for religious enthusiasm; whence perhaps the spiritual, almost ascetic, style of its early painters. The most distinguished among these were Piero Cavallini, Gentile da Fabriano (whose style Michel Angelo declared was like his name, *gentile*), and Piero della Francesca, after whom came Pietro Perugino (born in 1446, died in 1524), by far the best painter of his school up to his time, and whose style, though wanting in vigor, was distinguished by [illegible], grace, and tenderness of expression. His scholars were numerous, including Pinturicchio, Andrea Luigi, called L'Ingegno, Lo Spagna, and above all Raphael (Raffaelle Sanzio d'Urbino), whose fame has overshadowed the rest. Of the various excellences of this remarkable man, who, dying at the age of 37, left the greatest name by general consent in modern painting, it is unnecessary to speak at length here. He has been described as "the first of painters, for moral force in allegory and history unrivalled; for fidelity in portrait unsurpassed; who has never been approached in propriety of invention, composition, or expression; who is almost without a rival in design; and in sublimity and grandeur inferior to Michel Angelo alone." In separate qualities he may have been equalled by some contemporary painters, and in color, which he regarded as a means and not an end in painting, he was inferior to the Venetians; but his frescoes in the Vatican, his Madonnas and holy families, his great altarpieces and his cartoons nevertheless represent the highest efforts of modern art, and have made his style not that of Rome alone, but of the world. Raphael had numerous scholars, who imitated him with more or less success, and some of whom assisted him in the execution of his frescoes. But after his death most of those who had original genius deviated into exaggerations and insipidities, and soon lost all traces of the noble grace and power of their master. The sack of Rome by the constable de Bourbon in 1527 caused the dispersion of his followers then in the city, who carried into all parts of Italy a spurious style, miscalled the "Raphaelesque." His best scholars were Giulio Romano, the most distinguished of all for original power, but of a far lower order of mind than his master; Gian Francesco Penni, called Il Fattore; Perino del Vaga; Giovanni da Udine; Polidoro da Caravaggio; Pellegrino da Modena; Bartolommeo Ramenghi, called Il Bagnacavallo; and Benvenuto Tisi, called Il Garofalo. Primaticcio, Nicolo del Abate, and Tibaldi also acquired the Roman style of Raphael, which they carried into France and Spain. The execution by Michel Angelo of the "Last Judgment" in the Sistine chapel in 1541 produced a crowd of feeble imitators of his style, after whom came Giuseppe Cesari d'Arpino and Michel Angelo Caravaggio, the former representing the *machinisti* and the latter the *tenebrosi* or *naturalisti*, whose style, though not deficient in power, was founded on mere natural imitation, and was characterized by coarseness and vulgarity. These were succeeded by the Carracci and their followers, who flourished during the 17th century; and in the 18th the history of the art closes with Andrea Sacchi, Carlo Maratti, and Raphael Mengs, the first a painter of merit, the last two academic and mannered.—The Bolognese school, though claiming to share with those of Tuscany, Rome, and Venice the honor of bringing about the revival of painting, presents no name of great importance until the close of the 15th century, when Francesco Francia, a painter of genuine religious sentiment, and the friend of Raphael, flourished. His influence was only temporary, and it was not until about 1585 that the school witnessed its most brilliant epoch in the establishment by Ludovico, Agostino, and Annibale Carracci of their celebrated academy, called, from the principles on which it was conducted, the eclectic school of Bologna, and the fundamental idea of which was to combine the closest study of nature with the imitation of the best qualities of the old masters. The Carracci and their chief scholars, Domenichino, Guido Reni, Lanfranco, Albani, and Guercino, extended their influence throughout Italy; but their efforts tended to substitute academic tameness for what little originality survived the decline of painting, and their style, though frequently admirable as illustrated by themselves, did not long survive them. Their greatest merit perhaps consisted in the attention they gave to landscape.—Of the schools of northern Italy, in addition to those mentioned, the most noted was that of Parma, the great ornament of which was Antonio Allegri, known as Correggio, who in the early part of the 16th century brought the art of chiaroscuro and relief to perfection. One of his chief characteristics was a winning softness and grace, tending in some instances toward affectation; and the evil consequences of this tendency are visible in the works of Francesco Mazzola, called Il Parmigiano, otherwise an excellent painter, and after Correggio the best artist of the school.—At Milan a flourishing school was established by Leonardo da Vinci, who executed there some of his finest works. About the commencement of the 17th century the Procaccini founded an eclectic school in Milan.—The school of Naples claims an antiquity equal to that of Florence, but no name of importance occurs until the 17th century, when Giuseppe Ribera, called Lo Spagnoletto, and Salvator Rosa, both leading painters of the *naturalisti*, flourished. The latter was one of the earliest and most vigorous of landscape painters, but even in this class of works reflects the coarse feeling of his school. The last Neapolitan painter of eminence was Luca Giordano, called, from his rapidity of execution, Fa Presto.—Although painting in Germany can be traced back to the Carlovingian period, little is known of the productions of its artists, the missal illuminators excepted, previous to the 13th century. During the latter half of the 14th century, under Meister Wilhelm, or William of Cologne, who, according to a contemporary chronicler, was "the best painter in all German lands, and painted all sorts of men as if they were alive," the school of Cologne acquired considerable repute. The pictures in Cologne attributed to this master and to his scholar, Meister Stephan, notwithstanding a Gothic hardness peculiar to all mediæval German art, are remarkable for richness of coloring, careful finish, and deep religious sentiment. Contemporary schools flourished in Nuremberg and Westphalia. The 16th century witnessed the culmination of German art in the person of Albrecht Dürer, the scholar of Michael Wohlgemuth of Nuremberg, and almost equally distinguished as painter, sculptor, and engraver, though now chiefly known in the last capacity. Lucas Cranach about the same time headed the contemporary school of Saxony, and enjoyed almost as great a reputation as Dürer himself. Other painters of the period were Albrecht Altdorfer, a scholar of Dürer, Matthias Grunewald, Hans Burgkmair, and particularly Hans Holbein the younger, in whom the old mediæval ecclesiastical spirit is relieved by freer conceptions of nature and a purer sense of physical beauty, while the characteristic German style is retained. After 1527 his history belongs to England. Subsequently the Germans became imitators of the Netherlandish and Italian eclectic schools, and previous to the 19th century few names of note occur among them. In the first decade of the present century a remarkable revival was commenced by a number of young German painters assembled in Rome, the leading motive of which was a protest against the effete academic generalization under which art languished. The result was the formation of a mystical school, which, under the lead of Overbeck, has attempted to revive the sentimental, ascetic art of the 14th century; and of another more purely Teutonic, whose leaders, Cornelius, Kaulbach, Hess, and Schnorr, have idealized history with considerable success. Lessing, Bendemann, and others instituted a reaction against the severe ecclesiasticism of Overbeck, and formed a separate school, the chief seat of which is Düsseldorf. Accounts of these movements and of their instigators will be found among the biographical articles of this work. —The Flemish school dates from the commencement of the 15th century, when Hubert and Jan van Eyck established themselves at Bruges, and drew around them pupils from all parts of northern Europe. Dignity and strength, combined with a close imitation of external nature, were the characteristics of their style, as illustrated in the celebrated polyptych painted by them for the church of St. Bavon, Ghent. This work presents also some of the first successful attempts at landscape painting. To Hubert Van Eyck is due the discovery, not of oil painting, which was practised with more or less skill for 2 or 3 centuries before his time, but of a drying varnish, which was at the same time more suitable for mixing with pigments than any vehicle previously known. The new method was adopted by northern artists generally in the first half of the 15th century, and was about 1450 carried into Italy by Antonello da Messina. Among the scholars and successors of the Van Eycks were Roger of Bruges, Hans Hemling or Memling, perhaps the best painter of the school, and Jan Mabuse. A contemporary school flourished at Antwerp, which previous to the middle of the 16th century produced at least two firstrate artists, Quentin Matsys and Lucas van Leyden, to whom succeeded a crowd of imitators of the Italians, whose efforts in design were worthless, but who transplanted into the Netherlands the true Venetian coloring. With the 17th century commenced the most brilliant epoch of the Flemish school, during which the genius of Peter Paul Rubens, whom Haydon characterizes as "a giant of execution and brute violence of brush, and brilliant color and daring composition," revived the old glories of Florence and Venice. Physical energy and life were his characteristics, and these were reflected with exaggerated coarseness in the works of Jordaens, Gaspar de Crayer, and others of his followers, who form what is known as the school of Brabant. Anthony Vandyke, his most illustrious scholar, however, painted with more elegance than his master, and brought portraiture to the highest excellence. Painting languished in the Netherlands after the latter part of the 17th century, but, as in other parts of Europe, has within the present century experienced a revival, which will be productive of good results. The art is now pursued with success by Wappers, De Kaiser, Gallait, Verboeckhoven, and other Belgian artists. Gallait especially ranks among the first of living historical painters.—The Dutch school seems to have been identical with the Flemish until the early part of the 17th century, when a peculiar reaction from the mannered style of the masters of the preceding century manifested itself in Holland. This movement was headed by Paul Rembrandt van Ryn, a man of singular genius, who took up a hostile position against the study of the ideal, and deliberately proceeded on the principle of imitating vulgar nature. The ugliness of his models, selected apparently to show what obstacles he could overcome, is however more than redeemed by surpassing effects of light and shade, and through his mean and coarse design shines the individuality of a gloomy and original mind. His style, called by Kugler the "phantasmagoric," was the very opposite of that of Rubens, and in landscape and history severed the Dutch school completely from that of Brabant. Rembrandt had some eminent scholars, including N. van Berghem, Eeckhout, P. de Koninck, F. Bol, and Nicolas Maas. Contemporary with Rembrandt flourished a class of painters of remarkable merit as colorists, and well versed in the technics of their art, who cultivated what is called *genre*, and so greatly excelled in this department as to justify the remark, that "*genre* and the Dutch style are almost synonymous." Their pictures are generally of small size, and are characterized by minute and exact imitations of familiar and frequently of vulgar subjects. Among the most eminent of these, of whom we can only give the names here, were Peter Breughel and his sons Hell Breughel, so called from the diabolical character of his subjects, and Velvet Breughel, famous for his soft handling; David Teniers, the elder and the younger, the latter a distinguished painter of low life. Adrian van Ostade, Adrian Brauwer, and Jan Steen, equally celebrated in the same department; Gerard Terburg, Gerard Douw, Gabriel Metzu, and Franciscus Mieris, eminent painters of genteel life. About the same time landscape painting became developed among the Dutch with wonderful rapidity, and generally with a purer taste than *genre*. Paul Bril caught the Italian spirit from painting in Italy, and Jan and Andreas Both, Pynacker, Albert Cuyp, Nicolas Berghem, Jan Miel, Karel Dujardin, and Adrian van der Velde cultivated an ideal or pastoral style with eminent success. Jacob Ruysdael, Minderhout Hobbema, and Antony Waterloo excelled in vivid and natural imitations of native scenery, without aiming at ideal beauty; William van der Velde the younger and L. Backhuysen in marine views; Philip Wouvermans in hunting parties; and Paul Potter in landscapes with cattle and figures. Snyders, the friend of Rubens, and the greatest of all the animal painters, may be mentioned here; also Hondekoeter, a painter of poultry; and De Heem, Rachel Ruysch, and Van Huysum, celebrated for their fruit and flower pieces. A few of these lived into the 18th century, but before that time the art had lost most of its vitality.—The Spanish school stands almost alone in the history of art in the uniformly religious and ascetic character of its productions. A rigid code of rules, established by ecclesiastical authority, prescribed the method of treatment when sacred subjects were selected, and the strong Catholic feeling of the artists led them to give an almost exclusive attention to this class of subjects. Painting can scarcely be said to have had an existence in the Spanish peninsula previous to the middle of the 15th century, and it was not until the 17th that the school had any other than a local reputation. The visit of some Flemish artists in the 15th century, and somewhat later of Titian and other Italian masters, gave the native painters their first practical ideas of color and design. In the 16th century schools were already established in Castile, Valencia, Seville, and elsewhere, that of Seville being perhaps the most distinguished. Among the eminent painters connected with them were Antonio del Rincon, Luis de Vargas, Luis de Morales, Vincente Joanes, sometimes called the Spanish Raphael, Pablo de Cespedes, and Juan de las Roelas, most of whom studied in Italy, and flourished in the 16th century; Francisco Pacheco; Alonso Cano, eminent as sculptor, painter, and architect; Francisco Zurbaran, a distinguished painter of the naturalistic school of Caravaggio; and Diego Velasquez de Silva and Bartolomé Esteban Murillo, who share the honor of making Spanish art known and admired in all parts of the civilized world. The characteristics of their styles are described in the biographical notices of them. Since the commencement of the 18th century Spain has produced no painters of eminence.—Painting was practised in France as early as the time of Charlemagne, but nothing like a national school can be said to have had an existence until after the visit of Primaticcio and other Italian artists, at the invitation of Francis I. Simon Vouet, who flourished at the commencement of the 17th century, received an Italian education, and is considered the master and model of the succeeding generation of French painters. Contemporary with him were Nicolas Poussin, eminent for the classic spirit of his compositions and his landscapes; Gaspar Poussin, also eminent in landscape; Claude Gelée, a master of aërial perspective, as of nearly every other branch of landscape painting; and Sébastien Bourdon. All of these, though French by birth, practised their art and passed most of their lives in Italy. Eustache Le Sueur and Charles Le Brun were the most eminent of Vouet's scholars, the latter, an artist of merit despite his affectation of manner and violations of taste, being the painter of many of the immense pictures at Versailles which testify to the vanity and extravagance of Louis XIV. In the succeeding reign Antoine Watteau painted *fêtes galantes* with grace and effect; Joseph Vernet was noted as a marine painter; and somewhat later Jean Baptiste Greuze obtained a unique reputation for his female heads and charming representations of domestic life. Painting steadily deteriorated during the latter half of the 18th century, until restored to a temporary vitality about the time of the French revolution by Jacques Louis David, whose style, known as the "classic," though dry, pedantic, and deficient in true expression, showed considerable mastery of form, and was followed by Guérin, Drouais, and a numerous band of scholars. Gros first broke away from this "morbid imitation of the antique," as it has been called, and with Géricault and others inaugurated the system of painting from nature, whence originated the modern French school, the most distinguished ornaments of which are Leopold Robert; Paul Delaroche, one of the chief painters of history of the present century; Ary Scheffer, singularly pure and severe in his ideal conceptions; Horace Vernet, unrivalled in battle pieces; Delacroix, Ingres, and Couture; Rosa Bonheur, whose horses and cattle are among the best ever painted; Troyon, excellent in landscape; and Édouard Frère, Chavet, and Meissonier, eminent in different departments of *genre*.—Of painting in England little can be said previous to the 18th century. Jan Mabuse, Holbein, Sir Anthony More, Rubens, Vandyke, Lely, Kneller, and other continental painters, had during the two previous centuries successively practised their art there, principally in the department of portraiture; but their influence was unavailing to form a national school. The few native artists of note who flourished within this period, including Hilliard, Isaac and Peter Oliver, miniature painters, and Dobson, Nicholas Stone, and Jameson, called the "Scottish Vandyke," were portrait painters, and that branch of painting alone received encouragement. The first important historical works by an English artist were the frescoes executed by Sir James Thornhill in the interior of the dome of St. Paul's, London; but his illustrious son-in-law, William Hogarth, the great satirical painter of his time, and one of the most original painters of any age, is the first name of note in the history of British art. He had however but little direct influence upon the artists of his time, and the honor of founding the modern English school belongs to Sir Joshua Reynolds, excellent in portraiture and history, and preëminent as a colorist. His contemporary and rival, Thomas Gainsborough, often equalled him in portraits, but is better known as the first of a line of landscape painters whose works would adorn the art of any epoch. Among other painters who flourished during the latter half of the last century were Richard Wilson, eminent in landscape; Barry, Opie, Northcote, Fuseli, Copley, and West, historical and portrait painters, the last two being natives of America. The influence of Reynolds upon the succeeding generation of painters is shown in the strong bias for color which now forms one of the chief characteristics of the English school. In the first quarter of the present century flourished Sir Thomas Lawrence, Hoppner, Raeburn, and Jackson, portrait painters; Wilkie, the best painter of low life England has produced; Haydon, a historical painter of genius, in spite of his mannerism and egotism; Etty, a vigorous colorist; Turner, the most original and imaginative, perhaps, of landscape painters; Constable, Calcott, W. Collins, Morland, Nasmyth, Bonington, eminent in the same department; and John Martin, whose architectural extravagances and exaggerated effects of light and shade had a brief popularity. During the same period *genre* was cultivated by Bird, Smirke, Stothard, and many others, and has been continued to the present day by Newton, Leslie, Cooper, Mulready, Maclise, Eastlake, Redgrave, E. M. Ward, Webster, Hamilton, Cope, Dyce, C. Landseer, J. R. Herbert, Horsley, W. J. Muller, Frith, Faed, and many others, most of whom have also painted history and landscape with success. Among prominent landscape painters of the present day are Creswick, Stanfield, D. Roberts, James Ward, Linnell, and F. Lee. Sir Edwin Landseer occupies a peculiar and prominent position as a painter of dogs and animals of the chase. The British school of water color painting, founded by Paul Sandby in the middle of the last century, is the best in the world, and in the department of landscape has produced works scarcely inferior to those of the oil painters. Among its chief artists are Turner, Prout, Copley, Fielding, Roberts, W. Hunt, Lewis, Cattermole, Cox, Absolon, Corbould, Nash, and Stanfield. Within the present century has arisen a peculiar school, styling itself the "Pre-Raphaelite Brotherhood," and represented by William Holman Hunt, Millais, Dante Gabriel Rossetti, and some others, who, according to their most earnest advocate, Ruskin, "oppose themselves to the modern system of teaching, and paint nature as it is around them, with the help of modern science, and with the earnestness of the men of the 13th and 14th centuries."—For information concerning the chief depositories of paintings in Europe, the reader is referred to the article Museum.—Painting made little progress in the United States previous to the present century. Benjamin West, a native of Pennsylvania, and the second president of the British royal academy, gained all his reputation abroad; and Copley, though he left many admirable portraits in America, established himself in England before the revolution, and produced his most important works in history and portraiture in that country. Charles Wilson Peale and Col. John Trumbull were the first native artists of note who practised their art to any considerable extent at home; and the Trumbull gallery of portraits and pictures illustrating American history, at New Haven, would be a valuable contribution to the art of any nation. In the early part of the present century Malbone, Gilbert Stuart, and Allston vindicated the claim of America to the possession of the highest order of artistic ability; the first an excellent miniature painter, the second a rival of Reynolds in portraiture, and the third an imaginative painter of high excellence in all walks of his art. About the same time John W. Jarvis and Thomas Sully held a high rank as portrait painters, Vanderlyn painted history with success, and somewhat later Newton and Leslie, Americans by birth or parentage, established themselves in England and became celebrated in the modern English school of *genre*. About 1825 Thomas Cole founded what may be called the American school of landscape painting, a department which was thenceforth cultivated by native artists more universally than any other. The works of Cole, though not remarkable as literal transcripts of individual forms, are characterized by a thoughtful morality, and a tendency to allegory. The series of "The Course of Empire" and "The Voyage of Life" are among the finest specimens of American art. Contemporary with Cole or immediately succeeding him were Doughty, Durand, Inman, and Fisher, the two first named eminent in landscape, and the third the first American painter who attempted *genre* with success; Rembrandt Peale, Weir, Huntington, Rothermel, and Page, painters of history, landscape, and *genre*, and the last named distinguished as a colorist; Neagle, Morse, Ingham, Harding, and Fraser, portrait painters. Since the middle of the century landscape painting has received an active and healthful impulse, and no artists in any European school show more talent in this department than those of America. Prominent among the latter are Church, Kensett, G. L. Brown, Cropsey, Chapman, Casilear, W. and J. M. Hart, Mignot, Gignoux, Gifford, Colman, Cranch, Gay, Inness, Shattuck, Hubbard, Boughton, Dana, and many others, including some mentioned above. The works of all of these are characterized by close imitation of nature, and in general by a freedom from old world conventionalisms. Within the same period *genre* has been cultivated with considerable success by Mount, Lang, Lambdin, May, Ehninger, Darley, Hoppin, Blauvelt, Eastman Johnson, William Hunt, Edmonds, and others; and portrait painting by Healy, Elliott, Hicks, Baker, Stone, and Staigg, the last also a miniaturist. Hays, Tait, Beard, and Hinckley are well known animal painters. History has comparatively fewer followers, and that department receives less encouragement than either of the preceding. There are however some prominent painters of this class, including Leutze, a pupil of the Düsseldorf school, Gray, Powell, Rossiter, Terry, and White.

PAINTS, coloring substances variously prepared, so that they may be spread with a brush over surfaces of wood, paper, canvas, &c. The name may properly include water colors, which are mixtures of the coloring matters with water and gum, usually prepared in the form of solid cakes, and which when wetted with water and rubbed readily impart to it a portion of the coloring matter. It may also include the colors used by artists, and those preparations employed in house painting. The former are distinguished as artists' or oil painters' colors, and the latter are known as the common paints. The sources of the colors of the last two classes are to a considerable extent the same, but artists' colors are more various and in general much the more carefully prepared. The secret of their perfection consists in the most thorough levigation and grinding by long continued rubbing between hard surfaces. By this means their lustre and transparency are most effectually increased. We can only give a very general description of the principal colors employed by artists.—*Whites.* Flake white is a preparation of ceruse or carbonate of the oxide of lead with excess of the oxide. (See WHITE LEAD.) Silver white (*blanc d'argent*) or krems white is the same preparation from selected scales of the purest and whitest ceruse, ground for an unusually long time with particular care. These have been regarded as the best white for oil or resin vehicles, when pure; but they are often adulterated with pipe clay, sulphate of barytes, chalk, and other substances, the first two of which may be detected by their insolubility in dilute nitric or acetic acid; and they are acted on and tarnished by the impure gases common in the atmosphere of dwellings, particularly those lighted by gas. They are consequently rapidly giving place to the zinc white, the purest variety of which, known as snow white (*blanc de neige*), possesses the good without the objectionable qualities of the flake white. (See ZINC.) Venice white is prepared from equal parts of ceruse and sulphate of barytes. For a dense ground the preparation known as Pattinson's oxichloride of lead is advantageously used.—*Yellows* derived from vegetable sources, as gamboge, are not durable, bleaching in the light. A durable yellow of pale canary color is obtained from chromate of strontian, which is produced by adding a solution of chloride of strontian to one of chromate of potash. Sulphuret of cadmium forms a rich and brilliant orange, also permanent. The oxides of iron, in the native ochres or the artificial preparations, furnish a variety of shades of yellow, as well as of red, which are among the most durable and valuable paints. The native ochres properly levigated and ground produce such a variety of beautiful colors, that there is little inducement to have recourse to artificial preparations of this description. A great variety of mineral yellows might be named which possess a good color and are more or less used, but are not durable, are affected by foul air, and moreover often injuriously affect other colors with which they come in contact. Such are the chrome yellow and chrome orange, preparations of chromic acid and lead. Naples yellow, a compound of unknown composition, but said to contain the oxides of lead and antimony, and according to some of arsenic also, is a yellow of much reputation, but is readily tarnished by foul gases, by the light, and even by contact with an iron or steel spatula.—*Reds.* Vegetable substances, as the madders, afford, when made into lakes with earthy bases, rich and beautiful colors; but, like most vegetable colors, they cannot be depended upon for permanency. The more highly oxidized ochres produce very valuable reds, such as the light red and Indian red. Venetian red is an inferior sort of the same class, and the same may be said of colcothar. Vermilion red is a preparation of the bisulphuret of mercury. (See CINNABAR, and MERCURY.) This is a beautiful color, and not affected by any of the ordinary elements of change—acids or alkalies. The native cinnabar is much infeferior to the artificial. Other preparations of mercury, as the peroxide (red precipitate) and the iodide, also produce red colors, but they are not durable, and consequently are little esteemed. Red lead and phosphate of cobalt become dark when mixed with oil. The ammonio-perchloride of palladium is a rich, deep, and beautiful color. Carmine and the other lakes (see CARMINE, and LAKES) are very rich reds, but better adapted for miniature painting and water colors than for oils. Rouge is a carmine preparation.—*Blues.* The only really good blues are those known as ultramarine, the native or artificial. (See LAPIS LAZULI, and ULTRAMARINE.) These are brilliant colors of a purplish hue, not affected by foul gases, but removable by acids. That prepared by Zuber of Alsace, having less of the purple, was highly approved in the exhibition of 1851, and particularly recommended for the aërial tints in landscape painting. The preparations of cobalt, including smalt blues, are feeble colors. Silicates of copper, permanent enough in enamels, as in the tiles from Nineveh of 4,000 years' standing, soon blacken when broken up and mixed with oils. All the so called vitreous or silicious preparations, when levigated for pigments, are liable to change just as the substances change of which they are composed. Prussian blue is not a permanent color, and cannot be mixed with colors containing any alkali. The indigo blues fade in the light.—*Greens.* Oxide of chromium, prepared by igniting the orange-colored chromate of mercury, furnishes the chromium green, an opaque light green, of a full body, and permanent. Emeralds owe their color to this oxide. The mineral green-earth affords a delicate neutral green, known as *terre verte*, which is quite permanent, though attackable by acids. Various salts of copper, as the carbonates, phosphates, acetates (verdigris), disulphates, and arsenites, as Scheele's green and Schweinfurt's (see GREEN), produce greens of different shades; but all are acted on by foul gases and blackened by oil. Nickel green also has the latter defect. Rinman's green, derived from zinc or cobalt, is permanent, but has not the body or the fine color of chromium green. The greens derived from the artificial ultramarine process are similarly defective, and they too are permanent.—*Browns.* These, being in chief part prepared from vegetable matters, readily change and fade, and are among the least permanent colors. Umber, a natural mixture of a brown oxide of iron, manganese, and clay, found in the island of Cyprus, is a very useful color either in its natural state or burnt. The *terre verte* when burnt produces a beautiful brown. The color is also prepared from asphaltum, either the natural product or the residue in the distillation of the coal oils. A variety of browns, some of them rich, deep, and transparent, are prepared from decomposed vegetable matters, as peat, mixed with bituminous substances. Burnt ivory and bones give brown colors not so permanent as the blacks obtained from the same materials. Mummy brown is a preparation of white pitch and myrrh combined with animal matter. Prussian brown is obtained of various tints by calcining over an open fire in an iron spoon at a full red heat good Prussian blue, not of English manufacture. When carefully prepared from a good blue, the bits on being broken appear in part of blackish and in part of yellowish brown hues. A uniform tint is secured by grinding the products. Several trials may be necessary to obtain just the shade of brown desired. The color spreads remarkably well, is very permanent, and dries more rapidly than any other of the transparent colors. Sienna is an ochre of deep yellow brown, and by calcining is converted into a reddish orange brown.—*Blacks.* These in general are prepared by burning organic substances in close vessels and collecting the black carbonaceous residues. Lampblack is the soot of resins, fats, and oils; bone black, the residue from the calcination of bones. A durable bluish black is obtained from the calcination of vine twigs. The mineral peroxide of manganese affords a black possessing good drying properties.—The paints in common use for house painting, for the purpose of protecting or ornamenting the woodwork they cover, consist chiefly of a basis of white lead, white zinc, or a mixture of these with sulphate of barytes (see WHITE LEAD, and ZINC), which is either used as a white pigment, or is colored by the introduction of suitable coloring matters, called stainers. These consist of the colors above named, and their proportion rarely exceeds [illegible] of the mixture. To prepare the compound for use, the white lead and stainers are ground in a mill with oil, usually linseed, and for outdoor work especially this is first boiled, by which its drying quality is increased, and it is made thicker. It was formerly the practice for the painters to do their own grinding by hand upon a stone table with a stone muller; but the work is now more economically done by the manufacturer, or in mills especially appropriated to this purpose. In such establishments close mills are provided in which noxious materials, as white lead, red lead, the mercurial compounds, &c., are ground without endangering the health of the workmen, as always occurred in the ordinary methods of grinding by their dust escaping into the atmosphere. Other substances used as dryers beside boiled oil are litharge, sugar of lead, and spirits of turpentine. In the application of paints the process is varied according to the nature of the surface to be covered, and the effect required. For the best work the first coat of paint is of thin consistency in order that the pores of the wood or plaster may be filled with the oil, which it absorbs from the paint. Its drying is hastened by the addition of litharge. A second coat of thin paint may advantageously be added when the first has dried. To this succeeds a third and thicker coat, containing some spirits of turpentine and some of the coloring pigment. Upon this is laid a fourth coat thick and heavy, mixed with equal parts of oil and spirits of turpentine, and made rather darker than the shade required. For this coat sugar of lead is a good dryer. Within two days, and before this coat has become quite dry, the finishing or flatting coat may be applied. This is of pure white lead diluted with spirits of turpentine only, and colored a few shades lighter than the pattern. Gold size of the japanners is used in small quantity as the dryer. This coat dries as rapidly as it is laid on, and, incorporating itself with the heavy coat beneath, gives to the surface a beautiful gloss and finished appearance. Before putting the first coat upon woodwork, the surface is carefully smoothed and prepared for it; and before applying a new coat the surface already covered is rubbed with sand paper. Painting in imitation of oak, walnut, rosewood, &c., is called graining, this imitation of the grain of the wood being brought out upon the groundwork of 4 or 5 coats, which is left of the general color of the wood to be imitated. The last coat is mixed with equal parts of oil and spirits of turpentine. The colors are ground in water and mixed with beer, which gives them sufficient tenacity. The marble imtating the grain of the wood are made by drawing irregularly over the surface an instrument made like a comb, its teeth producing the parallel sets of lines. The finishing coat is of copal varnish.

PAISIELLO, Giovanni, an Italian composer, born in Taranto, May 9, 1741, died in Naples, June 5, 1816. He was educated in the conservatory of St. Onofrio at Naples under Durante, and at the age of 20 was a prolific composer of masses, psalms, motets, &c. His first opera was produced in 1763 at Bologna, and during the next 13 years he is said to have composed upward of 50 for the chief cities of Italy. Most of these, however, speedily sunk into oblivion. In 1776 he accepted an invitation from Catharine II. to establish himself in St. Petersburg, where he remained 9 years, producing in the interval several operas and oratorios, and a variety of miscellaneous pieces of vocal and instrumental music. Proceeding from St. Petersburg to Vienna, he composed for the emperor Joseph II. 12 symphonies, and the opera *Il re Teodoro*, which affords the first instance of the use of the finale in this class of compositions. On his return to Naples he was appointed royal chapelmaster with a large salary, and for many years remained in that city, declining invitations from the king of Prussia and the empress Catharine, but writing an occasional opera for London and other cities. During the temporary overthrow of the Bourbons in 1799 he accepted the office of national director of music under the republic, for which he remained in disgrace for several years after the return of the royal family. In compliance with pressing invitations from Napoleon, he visited Paris, where, as chapelmaster to the first consul, he produced a number of masses, motets, and other compositions. Returning to Naples in 1804, he was restored to his office of royal chapelmaster, in which he was continued by Joseph Bonaparte upon assuming the crown, and subsequently by Murat. Paisiello's industry and facility are shown in the number and variety of his works, which comprise 27 grand and 51 buffo operas, 8 interludes, and a vast collection of cantatas, oratorios, masses, and the ordinary forms of instrumental music. His operas, now scarcely known, rank among the choicest musical works of the last century, and were once universally sung and admired in all parts of Europe. His qualities have been said to consist of "fertility of invention; an extraordinary and happy facility of finding subjects full both of nature and originality; a talent unique in developing them by the resources of melody, and embellishing them by interesting details; an arrangement always full of fancy and learning; and a taste, grace, and freshness of melody by which he has far surpassed most other composers, and has been a model to those who have labored after him."

PAISLEY, a parliamentary and municipal borough and manufacturing town of Renfrewshire, Scotland, situated on both banks of the White Cart, about 3 m. above the junction of that river with the Clyde, 8 m. W. by S. from Glasgow; pop. in 1851, 47,952. The most interesting of its public buildings is the nave of an old abbey church, now used as a parish church. The abbey of which this is the only relic was the family burial place of the high stewards of Scotland before their accession to the throne. The navigation of the Cart to Paisley was improved at the instance of the municipal corporation in 1787, and vessels of 180 tons burden can now go up to the town. Paisley has communication with Glasgow by canal, and with all parts of the kingdom by the Glasgow and Paisley railway. The manufacture of shawls, which was introduced about the beginning of the 19th century, is the most important branch of industry. Silk, cotton, woollen, and mixed fabrics are made in close imitation of those of India, and shawls of genuine Cashmere wool are woven equal in texture and far superior in beauty of design to those of the East. Silk gauze has long been one of the chief staples, and there are also large establishments for the manufacture of muslins, plaids, chenille, handkerchiefs, cotton, thread, carpets, soap, leather, malt and distilled liquors, &c., beside bleacheries, brass founderies, boatbuilding yards, and a large silk-throwing mill. —In the time of Agricola the Romans had a station upon the present site of Paisley; but the town owes its existence to the priory, founded in 1160, on the E. bank of the Cart, by Walter, high steward of Scotland. In 1219 the priory was raised to an abbacy by Pope Honorius. With the growth of this establishment arose Paisley, first a small town on the opposite bank of the river from the abbey, and almost a dependence of it; and in 1488 it was erected by James IV. into a free burgh of barony.

PAIXHANS, Henri Joseph, a French general and inventor, born in Metz, department of Moselle, Jan. 22, 1783, died at Jouy-aux-Arches, near Metz, Aug. 19, 1854. He was educated at the polytechnic school, and entering the artillery rose to the rank of general. He was also a member of the chamber of deputies, where he occasionally spoke on naval and military affairs. As an inventor he is well known by the guns and projectiles which bear his name, and which were first employed in France in 1824. The guns, which were originally between 9 and 10 feet in length and weighed 75 cwt., were especially adapted for the projection of hollow shot and shells of a cylindro-conical shape. The latter, striking a ship with more exactness and force than the ordinary cylindrical projectiles, produce an explosion similar to the springing of a mine, and correspondingly destructive. In connection with his inventions Gen. Paixhans made numerous useful suggestions to the French government respecting the armament of ships of war or fortresses for the defence of the sea coast, which are embodied in a series of works published between 1815 and 1849. (See Artillery, and Navy.)

PAJON, Claude, a French Protestant theologian, born in Romorantin in Orléanais in 1626, died Sept. 27, 1685. He was educated at the academy of Saumur, where he studied theology under Amyraut, and at the age of 24 became preacher in Marchenoir. Although not prominent as a literary man, Pajon's abilities had become well known, and in 1666 he was made professor of theology in Saumur in place of Amyraut, who had died 2 years before. Already some of his doctrinal views had awakened attention, and though he was confirmed in his office by the provincial synod of Anjou, his teachings at Saumur gave great offence. He soon gave up the position of his own accord, and became a preacher in Orleans, where in 1673 he wrote an answer to Nicole's work entitled *Préjugés légitimes contre les Calvinistes.* His peculiar opinions now began to be spread not only by his own direct influence, but by the mouths of many zealous disciples. So much attention did the reputation of his Pelagian-Arminian views excite, that in 1676 Pajon suggested a trial of his teachings, which however resulted in nothing. After much controversy, several of the provincial synods in 1677 adopted measures to free the church from those entertaining his sentiments, although Pajon and his friends strenuously asserted that their doctrines were far removed from Pelagianism. He however did effective service for his church in his remarks on the pastoral charge issued by the Catholic clergy in 1682. His reply appeared in 1685. Soon after he died, grieving that his church would not receive the truth. His peculiar views were called Pajonism, although his followers would appear to have been more heterodox than himself.

PAJOU, Augustin, a French sculptor, born in Paris in 1730, died there, May 8, 1809. He passed 12 years as a government pensioner at Rome, and upon returning to France in 1760 established himself in Paris, where he passed the remainder of his life. He executed upward of 200 works in stone, metal, and wood, and for many years held the office of professor of sculpture in the French academy. He was also a member of the institute. Among his principal productions were Love as the ruler of the elements, in lead; Pluto holding Cerberus chained, which gained him admission to the academy; Psyche abandoned; statues of Pascal, Turenne, Bossuet, Buffon, and Descartes; and the sculptures of the façade of the Palais Royal. His works are designed in a natural style, and show a considerable improvement upon the productions of preceding French sculptors.

PAKINGTON, Sir John Somerset, an English statesman, born Feb. 19, 1799. He is the son of William Russell, of Powick court, Worcestershire, and assumed the name of Pakington subsequent to the decease of his maternal uncle, Sir John Pakington. In 1846 he was created a baronet. He entered public life in 1837 as member of parliament from Droitwich, which constituency he has represented down to the present time, and in politics is a conservative, and a conspicuous member of his party. He entered the Derby cabinet in 1852 as colonial secretary, and in the second Derby ministry, 1858–'9, was first lord of the admiralty. In the latter capacity he adopted measures for the improvement and extension of the British navy, the general features of which were retained by his successor in office.

PALACKY, Frantisek, a Bohemian philologist, critic, and historian, born in Hodslavitz, Moravia, June 14, 1798. He received a literary education under the care of his father, and completed his studies at Presburg and Vienna, devoting himself especially to the study of languages. Having in early life become acquainted with the celebrated Panslavist Kollar, he ardently embraced his views and devoted himself to the development of the Bohemian language and literature. In 1823 he repaired to Prague, where he was patronized by Count Sternberg, the founder of the national museum, and subsequently was appointed editor of the journal of that institution, the *Casopis ceskeho Museum,* an office which he held for 10 years (1827–'37). In 1829 he was charged by the estates of Bohemia with the task of writing a critical history of his country, receiving at the same time the title of national historiographer and a pension for life. His appointment was not sanctioned by the Austrian government until after the accession of the emperor Ferdinand (1835). The first volume of Palacky's "History of Bohemia" appeared, at the expense of the estates, in 1836, in the German language, in which he had previously published a "Theory of the Beautiful" and a "History of Æsthetics," and in which he subsequently also described his "Literary Journey to Italy in 1837," undertaken in search of materials for his great historical work. While this was slowly progressing he also published the *Archiv cesky* (3 vols., 1840–'44), and the "Oldest Memorials of the Bohemian Language," the latter in German. The movements of 1848 opened to Palacky the field of political activity. He was elected president of the Slavic congress, which assembled in Prague in June; and after its speedy dissolution, and the suppression of the national movement in that city, he was sent as representative to the Austrian diet, in which he became the leader of the Slavic element. After the end of the revolution in Austria, which was hastened by this untimely Panslavic agitation, Palacky returned to literary occupations. In 1860, after the political revival in Hungary, he renewed with his friends the national Bohemian movement, though now as an ally of the Hungarians.

PALADIN (Lat. *palatinus,* from *palatium,* a palace; It. *paladino;* Fr. and Sp. *paladin*), originally an officer of the palace in the Byzantine court, who ranked among the chief dignitaries of the empire. In the French romances of the middle ages the paladin, or *palasin* as he was at first called, was a knight of great strength and bravery, whose loyalty to his sovereign was only equalled by his chivalric bearing and generosity. The favorite types of this character are Roland, Oliver, Rinaldo, and the other paladins of the court of Charlemagne, whose exploits have been celebrated by Boiardo, Ariosto, and other Italian poets, and in innumerable legends and ballads. The term has been poetically applied to the knights of King Arthur's round table, and is frequently employed as synonymous with knight errant.

PALÆOGRAPHY (Gr. *παλαιος*, old, and *γραφω*, to write), the science of deciphering ancient inscriptions, whether on stone, metals, wood, baked clay, wax, linen, the bark or leaves of plants, or on parchment. The subject is divided into different heads, according to the character of the inscriptions or material on which they are found, and is treated in this work under CUNEIFORM INSCRIPTIONS, DIPLOMATICS, HIEROGLYPHICS, MINIATURE PAINTING, PALIMPSEST, &c.

PALÆOLOGUS, the name of a Byzantine family, first mentioned in history in the 11th century, and which occupied the throne of Constantinople from 1261 to 1453, the year in which that city was taken by the Turks. The first emperor of the family was Michael VIII.; the last, Constantine XIV., was killed while fighting in defence of his capital. A member of this family, Theodorus Comnenus, a son of Andronicus II., received the principality of Montferrat in Italy in 1305, in right of his mother Violante, and in the hands of this branch it remained until 1533. Another branch of the house reigned in the Morea from 1380 to 1460. Descendants of the Palæologi were still living in the 17th century.

PALÆONTOLOGY (Gr. *παλαιος*, ancient, *ων*, being, and *λογος*, a discourse), the science which treats of the fossil remains of plants and animals found within the earth's strata. These are, for the most part, unlike those species now existing upon the surface of the earth or inhabiting its waters. In the progress of this science light has been mutually derived from and thrown upon many correlative sciences; for the discoveries in fossil flora and fossil fauna bear the same relation to our knowledge of recent vegetation and existing animals, that the researches in archæology bear to our known historic records; the monuments of antiquity are often an index to the true understanding of the succeeding conditions. The determination of these remains of extinct species has led to careful comparisons with known living forms; and since it often happens that these fossil remains are very imperfect, consisting, among vertebrate animals, of a few bones or teeth, or bony plates of fishes, the comparisons have been carried to an extreme minuteness; and thus the structure of living animals has become better known. The same is true of the lower orders of animals and of plants. The requirements created by the study of many of these subjects have induced a reinvestigation of analogous living forms. The study of the embryonic development of some existing species has shown that their progressive phases were fixed and perfect forms in the earlier creations. It is in this perhaps that we may see indicated a certain progression in animal forms, inasmuch as in such instances that which was the finished and complete type is now only the undeveloped embryo of a higher organization. Again a rare form or representation of a group, occurring at an earlier period, becomes more fully developed at a later era or in the present creation; while many existing forms, of which there are few species in the living world, have been found much more fully represented in former creations. It thus becomes clear that the present more complete classifications both of botany and zoology could never have been reached except through the study of the extinct forms. These sciences have thus become better defined, and their arrangement and classification more natural and true, as well as greatly extended. It was formerly considered that mineralogy was the science on which geology most depended; and certainly there is room for mineralogy to aid and sustain geology, since it is not possible for the sediments of distinct geological epochs to give mineral products more similar than the organic contents, so that peculiar mineral characters will be found to mark different geological formations. Moreover, the physical conditions of surface and the nature of the sediments have determined the existence of certain forms of plants and animals during each period. There is thus a mutual alliance between geology, palæontology, and mineralogy. But it is to the science of palæontology that geology is by far the more indebted, since the study of fossil remains has established the order of succession among the stratified deposits of the earth's crust, and the relative position of each formation is better defined by its contained fossils than by any other means whatever.—The physical nature and condition of the older metamorphic strata, in which we have no remains of animals (though these may have existed and become obliterated through physical and chemical changes), prove the conditions of sea and land and distribution of sediments to have been essentially the same as in the present oceans. The extensive limestone formation renders it probable that the ocean of that period was inhabited, although of the inhabitants we know nothing. Palæontology however has shown that from the remote period of the Potsdam sandstone of the American continent, and the Cambrian rocks of Europe, the ocean was peopled by numerous forms of animal and vegetable life. We know that the tide ebbed and flowed, that the waters were agitated by storms, and even that the sands laid bare by the ebb of tide were rippled by the wind and trailed by the animals of that primeval ocean. From that period at least light and heat, cloud and sunshine, rain and wind have refreshed and fertilized the earth, which teemed with animal and vegetable existences. The testimony of living things is found in their fossil imprints, the earliest evidences of life in the remains of plants or animals imbedded in the sediments of these ancient sea bottoms, or stranded upon their shores. Through unnumbered ages life has presented its varied forms without cessation from its first appearance on the globe; though individuals and species have disappeared, so that each successive epoch, each new physical condition, whether of ocean bed or shore, or of marsh or dry land, presents us with its new and peculiar fauna or flora. In the course of these incalculable periods the aspect and character of the living forms have changed, and there has been, if not a regular progression, yet in the main a wonderful advance over the earlier organisms. It is to palæontology that geology is indebted for its rapid advances, and the certainty with which its determinations are made at different and distant points in the sedimentary fossiliferous strata. The careful study of the rock formations shows that certain groups of strata may be identified by their fossil remains; or in other words, the beds of limestone, sandstone, shale, &c., have each in their turn formed the bed of an ancient ocean, where the now fossil forms then lived, died, and their remains were imbedded, and are still preserved in the solid rock. The refinement to which this study has been carried has enabled us to distinguish by a few fossil forms the relative position of certain beds, and to learn that their position is never reversed.—The table on the following page indicates the relative positions of the geological formations, with their approximate maximum depth or thickness. This exhibits the American strata to the coal measures inclusive, with their organic remains; and the parallelism with European formations can be readily learned. Above the coal measures the series in direct sequence in this country is only found along the eastern slopes of the Rocky mountains. On the eastern shores of the continent we have some limited areas of the new red and jurassic formations, and also cretaceous and tertiary strata in great extent. The floras and faunas of the formations intermediate between the coal measures and the cretaceous, in this country, are at this time so little known, that the fossil characters given are based upon what is known of them in Europe. The fossils given in the subsequent table of strata, in the order in which they characterize the formations, are here arranged in their zoological relations:

PROTOZOA.

CLASS I. AMORPHOZOA. Of fossil sponges, *palæospongia* and *acanthospongia* occur in lower silurian in Europe, in America, in the upper silurian, *astylospongia*, *astræospongia*, and *palæomanon*. *Stromatopora*, which is placed by some naturalists among sponges, occurs abundantly in the Niagara group, and near the base of the lower Helderberg forms a bed of great extent and often 6 feet in thickness, and is widely distributed in the United States. It is found in the Wenlock limestone of England. Other genera occur in devonian, permian, triassic, oolite, and chalk.

CLASS II. FORAMINIFERA. Of this class of animals *fusulina* is abundant in the carboniferous limestone of Ohio, Illinois, Iowa, Missouri, and Kansas. It forms layers of several inches and even of feet in thickness in the carboniferous limestone of Russia. The foraminifera attain their greatest force in the eocene period, where the *nummulites* constitute immense masses. The nummulitic limestones are found in southern Europe, northern Africa, India, the United States, and also in Jamaica: the most common form is seen in the building stone of the great pyramid of Egypt. *Receptaculites*, which is probably a foraminifer, is very abundant in the Galena limestone, one species being a foot in diameter. It occurs also in the Niagara limestone.

CLASS III. INFUSORIA. These microscopic organisms occur in the tertiary of America and Europe, and constitute important masses. This class of animals is exceedingly interesting as forming a connecting link with past creations, many species identical with living ones being found in the chalk, and even as low as the oolite.

INVERTEBRATA.

PROVINCE I. RADIATA. *Polypi.*

CLASS I. HYDROZOA. The *graptolites* are characteristic lower silurian fossils. *Dictyonema* is known from the lower silurian to the Hamilton group or devonian. *Oldhamia*, the oldest known fossil of Europe, is probably a graptolitic genus.

CLASS II. ANTHOZOA (corals and madrepores). The lamelliferous or stony corals attain a great development in the silurian period, and are abundant in the devonian; they are less numerous in the carboniferous period, and again become abundant in the jurassic.

CLASS III. BRYOZOA. The most common paleozoic form is *fenestella*, which becomes remarkably developed in the carboniferous period in the genus *Archimedes*, having elongate, spiral axes. Other forms of bryozoa continue to the tertiary.

CLASS IV. ECHINODERMATA. This class is arranged under 6 orders:

1. *Crinoidea* (crinoids).
2. *Cystoidea* (cystideans).
3. *Blastoidea* (pentremites).
4. *Asteroidea* (sea stars).
5. *Echinoidea* (sea urchins).
6. *Holothuroidea* (sea cucumbers).

The cystideans have their greatest development in lower silurian strata, where crinoids also occur in large number. In upper silurian rocks there are fewer cystideans, while crinoids are abundant. In the devonian the *blastoidea* are common, while crinoids are more abundant, and cystideans few or none. The greatest development of *crinoidea* and *blastoidea* occur in the carboniferous period. The *asteroidea* begin in the lower silurian, and are comparatively rare fossils to the close of the palæozoic era. The *echinoidea* begin in the devonian, are common in the carboniferous period, and are far more abundant in the later geological eras.

PROVINCE II. ARTICULATA.

CLASS I. ANNELIDA. The tracks of these animals are found on the surfaces of the Potsdam sandstone of America and the cambrian rocks of Europe; and also in other palæozoic strata.

CLASS II. CIRRIPEDES (barnacles). These fossils are rare in the eocene, and more abundant in later periods.

CLASS III. CRUSTACEA.

Entomostraca. This class occurs in several genera of trilobites at the base of the Potsdam sandstone, followed by other trilobitic genera to the close of the [illegible] period. Near the end of the upper silurian period occur the remarkable fossils, *eurypterus* and *pterygotus*; while *ceratiocaris* appears a little earlier, and is followed in higher beds by the *dithyrocaris*.

Malacostraca. This class of crustaceans is found in oolite and tertiary.

CLASS IV. INSECTA. Fossil remains of insects have been found in the lower coal measures, and more abundantly in the lias limestone of Europe. Fossil spiders are found in the Solenhofen slates, and in the tertiary marls of Aix.

PROVINCE III. MOLLUSCA.

CLASS I. BRACHIOPODA. These in the paleozoic rocks are everywhere abundant, and the best guides. *Lingula* occurs in the earliest palæozoic formation, and continues to the present time. *Orthis* is one of the oldest and most

TABLE OF STRATA WITH THE CHARACTERISTIC ORGANIC REMAINS.

		Drift and alluvium.	Man with the associated animals and plants.
TERTIARY.	800 TO 1,000 FEET.	Pliocene. Miocene. Eocene.	Mammalia and birds; foraminifera and infusoria; lamellibranchiata and gasteropoda abundant; corals and bryozoa; land plants resembling the existing flora.
SECONDARY.	CRETACEOUS 1,000 TO 2,000 FEET.	Chalk and greensand.	Saurians (*mososaurus*, &c.); fishes, teeth of sharks abundant; echinidea; cephalopoda (*ammonites*, *scaphites*, *baculites*, &c.). Brachiopoda and acephala; bryozoa and sponges abundant.
		Wealden.	Large saurians, fishes, mollusca, &c. Land plants.
	JURASSIC SYSTEM. 1,000 FEET.	Upper oolite, Middle oolite. Lower oolite.	Marsupial mammalia; cephalopoda (*ammonites*, *belemnites*, &c.); corals; echinidea; crinoidea; brachiopoda; lamellibranchiata; gasteropoda; land plants.
		Lias.	Large saurians; fishes; cephalopoda (*ammonites* and *nautilus*); lamellibranchiata; few brachiopoda; crinoidea and other echinodermata.
		Triassic system, or new red sandstone.	Traces of mammalia; wingless birds, &c., chiefly known by foot marks.
PALÆOZOIC.		Permian system. 1,000 + feet.	Reptilia. Corals; few brachiopoda, lamellibranchiata, gasteropoda.
	COAL MEASURES.	Coal measures and conglomerate. 1,000 to 8,000 feet.	Land Plants. Batrachian reptiles, insects, and fishes; crinoidea, bryozoa, brachiopoda, lamellibranchiata; gasteropoda, cephalopoda. The crinoidea, brachiopoda, corals, and bryozoa occur in intercalated masses of limestone.
	MOUNTAIN OR CARBONIFEROUS LIMESTONE.	Kaskaskia limestone. St. Louis limestone. Warsaw limestone. Keokuk limestone. Burlington limestone. 300 to 1,000 feet.	Crinoidea, Echinoidea, blastoidea, bryozoa, corals, fish teeth, brachiopoda, lamellibranchiata; gasteropoda few, cephalopoda rare; crustacea.
	DEVONIAN.	Red shales. 3,000 feet.	Plants. Tracks of reptiles.
		Catskill mountain group. 3,000 to 6,000 feet.	Remains of fishes; a few lamellibranchiates.
		Chemung group. *Shales* and *shaly sandstones.* 1,000 to 1,500 feet.	Brachiopoda and lamellibranchiata abundant; crinoidea; bryozoa. Gasteropoda common; cephalopoda rare; crustacea rare.
		Portage group. *Shales and sandstones.* 1,000 feet.	Fucoides and land plants; brachiopoda and lamellibranchiata few; cephalopoda common in the genus *goniatites*.
		Hamilton group. *Shales, limestones, and shaly sandstones.* 1,000 to 1,500 feet.	Fucoides and land plants, but not abundant; brachiopoda and lamellibranchiata abundant; corals, crinoidea, and bryozoa. Gasteropoda common; cephalopoda (*nautilus*, *goniatites*, and *orthoceratites*); crustacea and fishes.
		Upper Helderberg group. *Limestones.* 300 to 500 feet.	Corals; crinoidea; bryozoa, brachiopoda; lamellibranchiata few; gasteropoda; cephalopoda (*cyrtoceras*, *goniatites*, and *orthoceras*); crustacea; remains of bony plates and spines of fishes.
		Oriskany sandstone. 100 to 500 feet.	Brachiopoda and gasteropoda abundant; lamellibranchiates few; crinoidea.
	UPPER SILURIAN.	Lower Helderberg group *Limestones and shales.* 500 to 1,000 feet.	Brachiopoda and gasteropoda abundant; corals; bryozoa; crinoidea; lamellibranchiata and cephalopoda few; crustacea.
		Waterlime group. 100 feet.	Crustacea of the genera *eurypterus*, *pterygotus*, and *ceratiocaris;* few other fossils.
		Onondaga salt group. 1,000 feet.	Few fossils.
		Niagara group. *Shales and limestones.* 500 feet.	Sponges; corals; crinoidea; cystidea; bryozoa; brachiopoda. Lamellibranchiata and gasteropoda few; cephalopoda abundant; crustacea abundant.
	BEDS OF PASSAGE.	Clinton group and Medina sandstone. 3,000 feet.	Fucoides; graptolitidea; brachiopoda; a few crustaceans and crinoids.
	LOWER SILURIAN.	Hudson river group. 6,000 feet.	Fucoides; graptolitidea; corals; crinoidea; bryozoa; brachiopoda; lamellibranchiata; gasteropoda; cephalopoda; crustacea.
		Trenton limestone group, including Trenton, Black river, Birdseye, and Chazy limestones. 1,000 to 3,000 feet.	Marine plants; graptolitidea; corals; bryozoa; brachiopoda; lamellibranchiata; gasteropoda; cephalopoda in several genera, especially *orthoceras*, which is in great abundance.
		Lower magnesian limestone or calciferous sandstone, and Potsdam sandstone, equivalent to the cambrian. 1,000 to 6,000 (?) feet.	Crustacea and mollusca (chiefly *lingula* and *theca*); graptolitidea; annelida (tracks and trails); marine plants.

characteristic genera, and widely distributed in the older calcareous rocks, usually associated with *strophomena*. The order of time in which the principal palæozoic genera appear is about as follows: 1. *Lingula*, *obolus*, *orthis*, *strophomena*, *leptæna*, *rhynchonella*, *pentamerus*, *discina*, *trematis*. These, except *lingula*, appear nearly at the same time. 2. Added to these are *chonetes* and *streptorhynchus*, with *pentamerus* more abundant, *merista* and its associates, *spirifer*, and *atrypa*. 3. In lower Helderberg limestones *Rensselaria*; and of the rhynchonelloid type the genus *Eatonia*. This latter becomes conspicuous in the Oriskany sandstone, where *orthis* assumes extravagant proportions; and the *strophomena* type of earlier rocks takes other characters, becoming the *strophodonta*, so characteristic of the higher groups. 5. Above the Oriskany sandstone, and characteristic of the upper Helderberg and Hamilton groups, are found *productus*, *leiorhynchus*, *athyris*, *tropidoleptus*, &c., and at the same time certain forms of *orthis* are abundant; *streptorhynchus* is more common than in the middle period, *chonetes* abundant; *strophomena* proper has disappeared, and *Rensselaria*, which marks the base of the formation, soon dies out. In the Chemung group, *productoid* forms are far more largely developed, with a diminution of all the others.

Class II. Lamellibranchiata. The fossils of this class are most abundant in the devonian period, though occurring in lower silurian and some parts of upper silurian strata; they are abundant in the shales of the devonian period and in all the succeeding strata, gradually acquiring a preponderance over the brachiopoda in later times.

Class III. Gasteropoda. These fossils occur in the earliest geological periods. *Maclurea* is found as low as the calciferous sandstone.

Class IV. Cephalopoda. These have existed in all geological ages, and present various and conspicuous forms. The *orthoceratites* are most abundant and remarkable in the lower silurian strata, associated with *lituites*, *cyrtoceras*, &c., and continuing to the coal measures inclusive. In the devonian and carboniferous periods *goniatites* and *nautilus* predominate, while in the jurassic period *ammonites* are in great profusion, with other genera; and in the cretaceous period *ammonites*, *scaphites*, *turrilites*, and *baculites*.

VERTEBRATA.

Class I. Pisces.

Order I. Plagiostoma (sharks, rays). Upper Helderberg and Hamilton groups in America; Ludlow rocks in Europe; more abundant in tertiary.

Order II. Holocephali (chamaroid fishes). Oolite.

Order III. Ganoidei. Old red sandstone or Catskill mountain group; carboniferous formation.

Order IV. Acanthopteri. Found only in modern geological periods.

Order V. Anocanthini. Belonging to modern geological periods.

Class II. Reptilia.

AMPHIBIA.

Order I. Ganocephala (*apateon* or *archegosaurus*). Found in the coal measures in Europe.

Order II. Labrinthodonta. New red sandstone.

SAURIA.

Order I. Thecodontia. Permian and triassic of Europe; one genus is found in the new red of Prince Edward's island, North America.

Order II. Cryptodontia. One genus in the new red sandstone of New England, and one has been found in South Africa.

Order III. Dicynodontia. Remains of this family have been found in South Africa.

Order IV. Enaliosauria (sea lizards). *Plesiosaurus*, *ichthyosaurus*, &c. This order of animals is remarkably developed in the jurassic period.

Order V. Dinosauria. *Iguanodon*, &c. This order begins in the triassic, and acquires its full development in the oolitic period.

Order VI. Pterosauria. Fossil pterodactyls are peculiar to the secondary period.

Order VII. Crocodilia (crocodiles).

1. *Amphicœlia*. Lias to chalk inclusive.
2. *Opisthocœlia*. Lias, oolite, and Wealden.
3. *Procœlia*. Cretaceous in North America and tertiary in Europe.

Order VIII. Lacertitia. *Mosoesaurus*. Cretaceous in North America and Europe; also in tertiary.

Order IX. Ophidia (serpents). Tertiary and slates of Oeningen.

Order X. Chelonia (turtles). Tracks of these animals are found in triassic sandstone; their bones occur in oolite, cretaceous, and tertiary.

Order XI. Batrachia. The remains of batrachian reptiles are found in carboniferous and triassic to tertiary

Class III. Aves.

The first indications of birds are their footprints in new red sandstone. The bones of birds occur in tertiary, and obscurely in cretaceous.

Class IV. Mammalia.

Order Herbivora. The greatest development of the herbivora is in the older tertiary, *palæotherium*, *anoplotherium*, &c., of Europe; *palæotherium*, *oreodon*, *archæotherium*, *anchitherium*, *rhinoceros*, &c., of America. In the later or post tertiary are found the larger forms, *mastodon*, *elephas*, &c., of Europe and America; and the *megatherium* and *megalonyx*, which are American types.

Order Marsupialia. These range from the herbivora to the carnivora. The earliest known mammals belong to this order. *Microlestes*, *amphilestes*, *phascolotherium*, and others, are known in the oolitic period of Europe; and *dromatherium* in beds of about the same age in America.

Order Carnivora. Fossil remains of carnivora are found not earlier than the tertiary period. *Machairodus* occurs in America associated with the oreodon, &c. The remains of this order in Europe all belong to newer tertiary.

Order Cetacea. Several genera appear in the tertiary period of Europe and America.

—The representatives of the vegetable kingdom are far less conspicuous in the older strata than those of the animal kingdom; and it is only in later palæozoic rocks and the subsequent epochs that these remains furnish the paleontologist with important materials for comparison. In closing this succinct sketch of the extensive science of palæontology, we may present the names of the classes recognized in the vegetable kingdom, to show the order of their appearance in the geological history. These classes are in the order of their organization.

CRYPTOGAMOUS OR FLOWERLESS PLANTS.

Class I. Anophytes.

1. *Musci* (mosses).
2. *Hepaticæ* (liverworts).

To which may be added the *fungi*, *algæ*, and *lichens*.

Class II. Acrogens.

1. *Equisetacea* (horsetails).
2. *Filices* (ferns).
3. *Lycopodiacea* (ground pines).
4. *Hydropterideæ*.

PHENOGAMOUS OR FLOWERING PLANTS.

Class III. Monocotyledonous or Endogenous Plants.

More than 20 orders are included under this class, among which are the grasses, sedges, reeds, [illegible], and many other plants.

Class IV. Dicotyledonous or Exogenous Plants.

Under the sub-class of angiospermous plants are included more than 100 orders, in which are embraced all the ordinary forest trees (except the *coniferæ*), besides the far greater proportion of the ordinary flowering plants.

Under the sub-class of gymnospermous plants are included all the *coniferæ*.

Notwithstanding, as before remarked, there is in the lapse of time a great advance over the earlier organisms, it is not possible with our present knowledge to trace a gradual or constant progression throughout all the successive geological periods. The organisms, whether animal or vegetable, have been adapted to or consequent upon the existing condition of the earth's surface during each period. The materials or strata containing organic remains, now presented to our examination in continental areas, were for an almost incalculable period the sediments of an ocean bed, without indications of dry land, or with only such indications as are furnished by the remains of animals which resemble those of present littoral origin. During all the time to the end of the silurian period, the only remains of plants are of marine origin, such as *algæ* or *frucacea;* while some of the forms thus referred may be plant-like sponges. The earliest evidence of dry land vegetation began with those conditions which ushered in the coal period, or what is termed the devonian; for the general character of the flora, so far as known, in the devonian period in America, remains essentially the same throughout the carboniferous period. In this epoch we have land plants of the acrogenous forms, such as ferns, in abundance; the *equisetacea* in the *calamites;* the *lycopodiacea* in the *lycopodites*, *lepidodendron*, &c.; while *stigmaria*, *sigillaria*, and other forms, constitute orders allied to those mentioned. During this period, the phenogamous plants are comparatively rare. The conditions of the surface favored only the development of the lower orders of vegetation; and we know that the low land of this period was subject to influx of the ocean, which has given alternating strata of land or shore deposits with land plants, and marine calcareous strata with shells and other marine animals only. Nor is it to be understood that, because of the great amount of land vegetation at this period, the entire surface of the present continent was dry land; and that plants everywhere abound at the same time and are imbedded in the same strata. So far from this being true, in the west and south-west land plants are extremely rare or altogether wanting in rocks of this age; while strata of marine origin, with marine animal remains, take their place. At each successive geological period the flora appears to have approached more nearly that of the present period, not however the flora in the same latitude, for the older floras of the temperate zones have assumed in many respects a tropical aspect. It is however in the cretaceous and tertiary periods that the flora approaches more nearly that of the present, embracing indeed many genera of the existing flora of the temperate latitudes. In the successive faunas, too, even of the ocean bed, we are to take into consideration the physical conditions existing. In the very early periods coarse and fine sediments are found, indicating, if not shore lines, at least shallow and disturbed water on the one hand, and deeper seas with quiet water and finer sediments on the other. The fossil shells of the coarser deposits are to a great degree wanting in the finer sediments, and *vice versa*. The recurrence of similar sediments at different periods, caused doubtless by a recurrence of similar physical conditions, is always accompanied by a similar fauna, sometimes indeed so similar as not to be readily distinguished from each other. In the study of species of the successive faunas, we find that in every period, as in the present, their geographical distribution has been influenced as in the present seas. By far the greater number of species are limited in their horizontal extension; while some are everywhere found so far as any evidence of the existence of the formation remains. This geographical extension of the species does not always correspond with the nature of the sediments; for while in the Trenton limestone period we have a large number of the brachiopoda extending over wide areas, even as far westward as the formation is known, the same is not true of the brachiopoda of the Hamilton group, where the physical conditions are equally uniform; for in this nearly all the known eastern species are replaced by other forms on the west of the Mississippi river. This fact however must not be used as an argument in favor of gradual climatic or other permanent changes; for again, during the carboniferous period, we find certain forms of brachiopoda having even a wider geographical range than in any of the preceding periods. —Our space does not permit a discussion of the causes that have operated in the distribution of the successive faunas and floras of the several geological periods; but that these have successively appeared and disappeared is well ascertained in every part of the habitable globe. Although we may show the existence of causes sufficient to destroy the faunas in many epochs of the earth's history, the repeopling of the same areas by other races, after a moderate lapse of time, is a problem we are not prepared to solve. Of the succession or coming in of new species we have everywhere the most palpable evidence; a kind of evidence, moreover, that in a large proportion of the examples precludes the possibility of their having been derived from sources far distant from the spot where we first behold their imbedded exuvia.

PALÆOTHERIUM (Cuv.; Gr. *παλαιος*, ancient, and *θηριον*, animal), the type of a tribe of fossil pachyderms, belonging to the family of *perissodactyla* (Owen), or those having an uneven number of toes, intermediate between the tapir and rhinoceros. The form was like that of the tapir; the raised nasals show that it had a small flexible proboscis; the feet were 3-toed; it had projecting canines, and molars $\frac{7}{7}$, the upper like those of the rhinoceros, the first smallest and single lobed, and the lower formed by 2 successive crescents with their convexity external, the first single and the last one trilobed. Several species are described by Cuvier and others, of which the largest and best known is the *P. magnum* (Cuv.), of the size of a horse, but of a stouter form; there are others varying in size from that of a hog and sheep to that of a hare. They belong especially to the gypsum of Europe (eocene), are abundant in the plaster quarries of Montmartre, near Paris, and extend even into the lower miocene; the species differ little, except in size.

PALÆPHATUS, the name of four Greek writers mentioned by Suidas. The first was an epic poet of Athens, whose origin was considered mythical, and whose age is unknown. Suidas says that he wrote the *Cosmopœa*, "The Birth of Apollo and Diana," "The Contest of Minerva and Neptune," &c. The second, who lived in the time of Artaxerxes Mnemon, was from Paros or Pirene, and is said by Suidas to have written a work on "Things Incredible." The third was a historian, a native of Abydos, who lived in the time of Alexander the Great, and is stated to have been on intimate terms with Aristotle. The fourth was a grammarian of Egypt, or of Athens, to whom several works are attributed by Suidas. There is extant a small treatise, entitled "Palæphatus on Things Incredible," which is evidently an abridgment of a larger work. It is uncertain who its author was, and if one of those above mentioned, it could only have been the fourth, as the treatment of the subject bears evidence of a later age than that of Palæphatus of Paros. He treats the Grecian myths according to the semi-historical theory, claiming that they had a foundation in fact, but were disguised and changed by the license of the poets and of popular tradition. (See Grote, "History of Greece," vol. i. cap. 16.) The first edition of Palæphatus was printed in 1505 at Venice in folio, along with other writers, by Aldus Manutius. The best edition of the text is that of Westermann in his *Scriptores Poeticæ Historiæ Græci* (Brunswick, 1843). In 1671 a Latin translation of the work was published at Cambridge, and in 1771 a French translation at Lausanne.

PALAFOX Y MELZI, José, a Spanish patriot, born in Torre del Alfranca, Aragon, in 1780, died in Paris in 1847. His family was one of the oldest in Aragon. At an early age he entered the royal body guard, and became part of the military household of the king of Spain. As an officer in the body guard, he accompanied the royal family to Bayonne in 1808. The king was retained a prisoner, but Palafox escaped in a peasant's dress and repaired to his estate near Saragossa. In the same year that revolted city was menaced by the French army under Lefebvre-Desnouettes, and the populace proclaimed him captain-general of Aragon (May 28). He is represented by Sir W. F. P. Napier and some Spanish historians as totally unfitted for the position, and indebted to others for the temporary success of his defence. Soldiers from the adjacent country were called into the city, barricades were erected in every street, and nearly every house was made a point of defence. After a siege of 61 days the French retired; but they returned in greater force successively under Moncey, Mortier, Junot, and Lannes, and the city capitulated in Feb. 1809. Palafox was not in active command at the time, being ill of a prevalent epidemic. The capitulation provided that Palafox should depart free, and that no one should be molested; but the city was pillaged, blood profusely shed, and Palafox, still prostrate with the malady, was sent a prisoner to Vincennes. He was only released upon the restoration of Ferdinand VII. in 1813, when he returned to Madrid with the king, and was confirmed in his position of captain-general of Aragon. Nevertheless he pronounced in 1820 for the constitution, and in 1823 signed a protest against the royal power. In 1833 he joined the party of Queen Isabella, and was soon after imprisoned upon suspicion of some correspondence with the queen's enemies, but was liberated upon proof of his innocence. In 1836 he was made duke of Saragossa.

PALAMEDES, a Grecian hero, son of Nauplius and Clymene. He served in the expedition against Troy, and for a time was commander-in-chief in place of Agamemnon, whose measures he opposed. According to the old Cyprian epic, he was drowned while fishing by Diomedes and Ulysses; but a later tradition is that he was accused of treason by Ulysses, who concealed gold or a forged letter from Priam in his tent, and then charged him with having been bribed by Priam. When Palamedes was led out to die, he exclaimed: "Truth, I lament thee, for thou hast died even before me." Still another tradition represents him to have been let down into a deep well, which Ulysses and Diomedes had falsely asserted to contain treasure, and then stoned. He is not mentioned by Homer, but was made the subject of tragedies by Æschylus, Sophocles, and Euripides. The unjust death of Palamedes was alluded to by Socrates in his last speech to his judges.

PALATE, the bony and muscular partition which separates the mouth in vertebrated animals from the anterior and posterior nasal cavities. The bony or hard palate forms the roof of the mouth, and consists of the horizontal portion of the superior maxillary bones in front and of the palate bones behind; these form a parabolic arch, bounded in front and on the sides by the upper teeth and their sockets, covered by mucous membrane, and giving attachment posteriorly to the *velum palati* or soft palate. The width, contractions, dilatations, extent, and perforation by larger or smaller incisive or other openings, are valuable characters in estimating the rank of the various subdivisions of vertebrates, those being the highest in which this part is broadest, uniform, and least pierced by foramina, making a complete partition as in man; the changes in the palate bones are connected with corresponding modifications in the sphenoid, and consequently with the whole anatomy of the skull. The soft palate is a movable, soft, and muscular partition, lined by mucous membrane; its free edge floats above the base of the tongue, having in its centre a conical appendage, the *uvula*, and on its sides the so called "pillars," the anterior directed obliquely forward and the posterior vertically, the triangular interval between them being occupied by the tonsils; the mucous membrane is studded with mucous follicles; the arteries are derived from the external carotid, and the nerves from the facial, trifacial, glosso-pharyngeal, and from Meckel's ganglion. The muscles of the palatal regions are the *circumflexus palati*, from the external surface of the pterygoid process to the velum, stretching horizontally the soft palate, and dilating the Eustachian orifice; the levator *palati*, from the petrous portion of the temporal bone, raising the palate and carrying it backward; the *azygos uvulæ*, vertical, forms the chief part of this organ, raising it with the palate; the *palato-pharyngeus* forms the posterior pillar of the palate, depressing the velum and elevating the pharynx; the *constrictor isthmi faucium*, in the anterior pillars, extending from the base of the tongue to the velum, depresses the latter and elevates the former. The soft palate is endowed with acute sensibility, and in the neighborhood of the uvula and its arches, and to a less degree on its anterior portion, ministers to the specific sense of taste. The mucous membrane of the palate is subject to inflammations, and the bones are attacked in syphilis and other cachectic diseases; these parts are also liable to arrests of development, in which the mouth and nasal cavities communicate through a fissure, with or without hare lip. In this deformity deglutition is difficult, sucking impossible, and the voice indistinct and nasal; the interference of surgery is necessary for its relief, and by the operation of staphyloraphy, which consists in placing and keeping in apposition the incised edges of the fissure, a partial or complete closure may be effected; where this is impracticable, relief may be obtained from gutta percha or metallic plates.

PALATINATE, The Upper and Lower, two separate states of ancient Germany, not contiguous, though under one ruler. Their territory is now comprised in that of France, Bavaria, Hesse-Darmstadt, and Prussia. The word palatine is related to palace, and as a title dates from the time of the Merovingian kings of France, connected with whose court was a high judicial officer called the *comes palatii*, a master of the royal household who had supreme authority in all causes that came by fiction to the king. When the sovereign chose to confer a peculiar mark of distinction upon the holder of any particular fief under him, he granted the right to exercise the same power within his province as the *comes palatii* exercised in the royal palace. With the function went the title of *comes palatinus*, or count palatine; and from the ruler the district under him became finally known as a palatinate.—The Upper Palatinate was bounded by Baireuth, Bohemia, Neuberg, Bavaria, and the territory of Nuremberg, and now forms in the kingdom of Bavaria the circles of Upper Palatinate and Upper Franconia. Its area was about 2,730 sq. m. The Lower Palatinate was situated on both sides of the Rhine, and was bounded by Katzenellenbogen, Würtemberg, Baden, Alsace, Lorraine, and Treves. The chief cities were Mannheim and Heidelberg. Its area was about 1,600 sq. m., and it comprehended the principalities of Simmern, Zweibrücken, Veldenz, Lautern, and the county Palatine properly so called. The hereditary sovereignty of the counts palatine over these districts dated from the 11th century. In 1777 the elector Charles Theodore succeeded to the sovereignty, and on his inheriting Bavaria (1778) the two states were united. During the wars of the French revolution, France took possession of that part of the Palatinate that lay on the left bank of the Rhine, but after the fall of Napoleon it was returned to Bavaria.

PALATINE (Hung. *nádor*), under the Hungarian constitution, the title of the royal lieutenant, in later periods officiating as mediator between the nation and king, and as president of the upper house of the diet. The archduke Joseph, brother of the emperor Francis, and his son Stephen, were the last palatines, the latter officiating at the beginning of the Hungarian revolution of 1848.—The term is also used as a title (Pol. *wojewoda*) of the governors of the larger divisions or provinces (*województwa*, palatinates) of independent Poland.

PALEMBANG, a Dutch province on the E. coast of the island of Sumatra, bounded by the strait of Banca, the provinces of Lampong and Bencoolen, and the Battah country; area, 18,000 sq. m.; pop. about 250,000. It is for the most part a marshy plain, watered by several large rivers, and covered by extensive forests. The W. part is mountainous. The soil is fertile, and the climate hot and moist, but not unhealthy. The cultivated crops are rice, sugar cane, tobacco, gambier, indigo, coffee, and pepper. All the animals of the forests and other parts of Sumatra are found in Palembang; and the chief domesticated ones are buffaloes, goats, sheep, hogs, and poultry. The inhabitants consist of the descendants of Javanese, of Malays, of an aboriginal people called Kumring, and of a wild race known under the name of Kubu, with a few Arabs and Chinese. Up to a recent date Palembang was an independent kingdom, ruled by a sultan, with whom the Dutch had a treaty. In 1811, when Java and its dependencies were occupied by the British, the Dutch officials at Banca fell into the hands of this chieftain, who put the whole of them to death, thinking thus to ingratiate himself with the new rulers. The English sent an expedition which dethroned him, annexed part of his dominions, and placed his younger brother in authority. When Java was restored to the Dutch, he resumed his rule, and kept them at defiance till 1821, when Palembang was finally subdued.—The capital, Palembang, is situated on the Musi or Sungsang, the most important river of Sumatra, about 50 m. above its mouth, in lat. 2° 58′ S., long. 105° E.; pop. 25,000. It lies on both banks of the river, which is here 400 yards broad with a depth of from 8 to 9 fathoms, and sufficient water all the way from the sea for large vessels. The only buildings of stone are the mosque and the tombs of the kings. There are several Arab and Chinese merchants at Palembang, and a trade is carried on with Java, Banca, Siam, China, and the English settlements in the straits of Malacca.

PALENCIA, a province of Spain, in Old Castile, bounded N. by Santander, E. by Burgos, S. by Valladolid, and W. by Leon; area, 4,580 sq. m.; pop. in 1857, 185,970. It is watered by the Carrion, Cieza, Pisuerga, and several other rivers, and the canal of Castile passes through it. With the exception of a portion of the N. part which is mountainous, the surface is level, and almost totally devoid of trees. Coal, chalk, gypsum, saltpetre, and copper ore are found. The climate is cold but healthy, and the soil is fertile; wine, grain, vegetables, and fruits are produced. Blankets and other woollen goods are manufactured. The province contains about 600 elementary schools.—The capital PALENCIA (anc. *Pallantia*), is situated on the left bank of the river Carrion, 117 m. N. N. W. from Madrid; pop. 11,470. The river is crossed by several fine bridges, and the town is surrounded by a strong wall. It contains a cathedral, begun in the 14th century and finished in the 17th, several churches and convents, an episcopal palace, the palace of the king of Navarre, several charitable institutions, among which may be mentioned a foundling hospital, an academy and numerous schools, a picture gallery, and a library. About ¼ of the population are employed in woollen manufactures. The town was a place of considerable importance in the time of the Romans. In honor of the bravery displayed by the women of Palencia, in their successful defence of the city when besieged by the Black Prince, they were permitted by Juan I. to wear a golden band upon their heads. It was occupied by the French general Foy in 1812.

PALENQUE, RUINS of, the most remarkable aboriginal remains of the continent of America yet discovered, situated on the Rio Chacamas, a branch of the great river Usumasinta, nearly in the centre of the Mexican state of Chiapas, 8 m. S. E. from the small town of Santo Domingo de Palenque, from which they take their name, in lat. 17° 30′ N., long. 92° 25′ W. The remains extend over a large area, as yet but imperfectly explored, and consist of vast artificial terraces, or terraced, truncated pyramids, of cut stone, surmounted by edifices of peculiar and solid architecture, and often of elaborate plan, also of cut stone, covered with figures in relief, or with figures and hieroglyphics wrought in stucco, and showing evidences of having once been painted in brilliant colors. Most of the buildings appear to have been of but one story, but there are several of 2, and also a square tower of 3, perhaps originally of 4 stories. The principal structure, known as the palace, stands on a truncated, terraced pyramid, faced with cut stone, 310 ft. long, 260 ft. broad at the base, and 40 ft. high. It is 228 ft. long, 180 ft. deep, and 25 ft. high, with a broad projecting cornice of stone. It faces the east, and has 14 doorways on each side and 11 at the ends, each 9 ft. wide, with intervening piers between 6 and 7 ft. wide. The whole is constructed of cut stones cemented with a mortar of lime and sand, and the entire face was covered with stucco and painted; but the greater part of this has fallen or disappeared under the influences of time and the elements. The piers are ornamented with spirited bass-reliefs in stucco, with borders of hieroglyphics, which, although considerably defaced, show a better knowledge of the proportions and anatomy of the human figure than has been found among the other works of the aboriginal nations of America. The principal doorway is only distinguished from the others by a flight of broad stone steps leading up the face of the pyramid. A corridor 9 ft. wide, covered by a semi-pointed arch, runs all around the building, separated from a similar inner one, of corresponding width, by a solid wall, with a doorway opening from the principal entrance, and pierced with openings in the form of the Greek cross and the Egyptian Tau, probably for purposes of ventilation. The building has 4 interior courts, from all of which open many rooms or chambers, floored with a smooth and solid cement equal to the best found in the ancient Roman baths. The principal courtyard is 70 by 80 ft., and reached by a descending flight of 5 steps 30 ft. broad. On each side are slabs of stone, carved with gigantic figures in bass-relief, 9 or 10 ft. high, adorned with rich head dresses and necklaces, but in attitudes strikingly expressive of pain. The second courtyard, corresponding in length with that just described, but narrower, is also surrounded by a corridor, the piers of which are covered with figures in stucco, or with plaster, which where broken reveals 6 or more coats or layers, each retaining traces of painting, and indicating that the edifice had been so long in use that the plastering required to be several times renewed. From the N. side of the 3d court rises a tower 30 ft. square at its base and 3 stories high, containing within itself another distinct tower, ascended by a narrow stairway, terminating against a dead stone ceiling—thus rendering the purposes of the structure, supposing it to be in its original condition, entirely inexplicable. In the E. corridor of this court are a number of stucco tablets, and one of stone which represents a figure seated cross-legged, after the manner of Buddha in some of the Hindoo sculptures and paintings, on a seat carved with the figures of jaguars, before which kneels another figure, richly dressed, in the act of presenting some object highly ornamented. A number of hieroglyphical figures occur on the tablet, below which are traces of a table of stone, perhaps an altar, which stood against the wall. Connected with the structure are a number of semi-subterranean vaults, and, it is said, others completely sunk in the mass of the pyramid, in which have been found vases containing human remains and many ornaments and minor relics of art. Several of the rooms have traces of altars in them, which stood before broad spaces on the walls, evidently once occupied by tablets, such as are found elsewhere in the ruins, elaborately sculptured with human figures and hieroglyphics.—Beside the building called the palace, there are a number of others of smaller size, but not inferior interest. One of these is deignated by Mr. Stephens in his plan of Palenque as Casa No. 1. It crowns a pyramidal structure of stone, so steep as to be ascended with difficulty, and 110 ft. high measured on its slope, and is 75 ft. long and 25 ft. deep, with solid walls on all sides except the N., which has 5 doorways and 6 piers. The whole front is richly ornamented in stucco, and the 2 corner piers are covered with hieroglyphics, 96 squares to each pier. The 4 piers dividing the doorways are ornamented with female figures, well executed, surrounded with borders of hieroglyphics. The visitor first enters a corridor 7 ft. wide, paved with broad stones, and roofed with a pointed arch formed by overlapping stones. Behind the corridor are 3 inner rooms, with a corresponding number of doorways, between which are massive stone tablets set in the wall, 13 ft. long and 8 ft. high, covered with hieroglyphics, 240 squares or combined figures in each. The 3 inner apartments are dark and gloomy. In the central one, set in the back wall of the building, and fronting the principal entrance, is another tablet of hieroglyphics, 4 ft. 6 in. wide, and 3 ft. 6 in. high. Still another, and in some respects more remarkable structure, is designated by Mr. Stephens as Casa No. 2. The base of the whole is a stone terrace 60 ft. on the slope, with a level esplanade at its top 110 ft. in width, from which rises a pyramidal structure 134 ft. high on its slope, supporting a building 50 ft. long and 31 ft. deep, with 3 doorways opening to the south, the piers between being covered with stucco ornaments, while the outer or corner piers, as in the case of Casa No. 1, contain hieroglyphics. The interior has a corridor paved and roofed as already described, behind which are 3 apartments, the central one the largest, and containing within itself a smaller chamber 13 ft. long and 7 wide, with a tablet of stone 10 ft. 8 in. long and 6 ft. 4 in. high, set in the wall at its back, fronting the principal entrance. This tablet contains a central group of human figures, apparently in the act of making a solemn sacrifice, on each side of which are 6 columns of hieroglyphics, 17 in each. The building is surmounted by what may be called two stories of interlaced stucco work, resembling a high, fanciful lattice, and made up originally in part of human figures, which, according to Mr. Stephens, who judged from the fragments, "in justness of proportion and symmetry must have approached the Greek models."—There are among the ruins other similar structures with tablets covered with human figures in relief and hieroglyphics, all of which seem to have been dedicated to religious purposes. But one edifice, that called the palace, already described, seems to have been designed as a habitation, and its original purpose is doubtless correctly indicated by the name that has been given to it. There are also the remains of an aqueduct 4 ft. in height, and roofed with a pointed arch of overlapping stones. A number of monolithic statues are scattered among the remains, one of which is 10 ft. 6 in. high, representing an erect figure, with a head dress in the form of a cross.—It may be repeated of these ruins, that no others yet found on the continent exhibit so numerous and marked evidences of skill in architecture and sculpture; and we are irresistibly led to the conclusion that Palenque (anciently there is reason to believe called Na-chan, which in the Tzendal dialect signifies seven serpents) was at one time the centre of the highest form of aboriginal civilization. From the dim light afforded by the ancient paintings and existing and recorded traditions, it seems that it was once the capital of a theocratic state, in which the ruler was "prophet, priest, and king," and which finally gave way to a military republic, resulting in a general disruption and separation of the people; one portion of them, under the lead of "holy men," clothed in white, penetrated into Yucatan and founded the ancient kingdom or theocracy of Mayapan, and built those numerous cities which the Spaniards found occupied, and which now, in their ruins, so closely resemble those of Palenque. In the wanderings of the traditional Cuculcan, called in Mexico Quetzalcoatl, we may perhaps trace the history of these sacerdotal leaders; and in the influence of his teachings on a relatively barbarous people, the origin of a large part of what is known to us as the civilization of Mexico.—Palenque seems to have been in ruins, and its site forgotten, at the period of the conquest. Cortes must have passed close to it in his famous march from Mexico to Honduras, and yet neither he nor the curious and communicative Bernal Diaz, who accompanied him, makes any mention of its existence. Indeed, no knowledge of it had reached the world, so far as can be ascertained, until the year 1750, during the administration of Don Antonio Calderon in Chiapas. The news of their discovery created a considerable interest in Spain, as is proved by the two explorations made by order of the government of that kingdom, in 1784 and 1787, by Bernasconi and Del Rio. It was not however until 18 years afterward that Charles IV. of Spain caused a careful examination of them to be made by Capt. Dupaix, the results of which long remained unknown. Forgotten in the archives of Mexico during the period of the revolution, the three memorials of Dupaix, and the drawings of his companion Casteñada, became finally, by exchange, the property of M. Baradère, who published them in 1834, in a work called *Recueil des antiquités Mexicaines.* In 1834 M. Frederic Waldeck visited the ruins and made many elaborate drawings and plans, which yet remain unpublished; and in 1843 they were explored by Messrs J. L. Stephens and F. Catherwood, and their account, largely illustrated with drawings and plans, was soon after published. (See Stephens's "Incidents of Travel in Central America, Chiapas, and Yucatan," and Catherwood's "Views of the Ancient Monuments of Central America, Chiapas, and

Yucatan.") They were visited still later, in 1846, by M. Arthur Morelet, whose account, destitute however of illustrations, was published in 1857 in Paris (*Voyage dans l'Amérique Centrale*), and translated and published in the United States in 1861, under the title of "Itza, or the Unexplored Regions of Central America."

PALERMO, a province of Sicily, bounded N. by the Mediterranean, E. by the provinces of Messina and Catania, S. by Girgenti and Cattanisetta, and W. by Trapani; area, 2,012 sq. m.; pop. in 1856, 541,826. It is the largest and most populous of the Sicilian provinces. The coast is irregular and the surface is hilly, but there are many very fertile valleys. The country has a general slope N. toward the Mediterranean. Its streams are numerous but small. It produces grain, oil, fruits, almonds, manna, sumach, licorice, and silk.—PALERMO (anc. *Panormus*), capital of the above described province and of the island of Sicily, in lat. 38° 6′ N., long. 13° 20′ E.; pop. 184,541. It is situated on the N. side of the island, on a deep bay between Capes Gallo and Zaffarana, and in a rich plain which is surrounded on the land side by two distinct mountain ridges. This enclosure between the hills and the sea has been called from its form and beauty the Conca d'Oro, or golden shell. The situation is extremely picturesque; the city itself, seen from the sea, with its many spires, domes, and towers, has an imposing and noble appearance. The harbor, formed by a mole 800 feet in length, is spacious and excellent. The city proper is nearly rectangular, and forms an oblong parallelogram, about 4 m. in circumference. The shortest side is that toward the sea. It is surrounded by decayed walls, entered by 12 gates, and defended by bastions. The harbor is moreover protected by a strong citadel and Forts Galita and St. Erasmus, and the lighthouse battery. Palermo is divided into 4 nearly equal parts by two wide streets that intersect each other at right angles in the centre of the city. The longer of these is called Il Cassaro, an Italian corruption of the Arabic *Al-Kasr*, "the palace." It runs from the sea to the palace of the viceroy, which is at the inland extremity of the city. The second is the strada Macqueda. At their intersection is a large public place, the Quattro Cantoneri, which is octagonal in form, having upon 4 sides the vista of these streets, and upon each of the others a handsome building in the Grecian style. The centre of this place is occupied by a fountain, and many statues stand in the various parts of it. There is a larger square before the palace, in which is a bronze statue of Philip IV. of Spain. Numerous smaller streets without any regular plan run into these two, but are all narrower and dirty. The whole city, however, is well paved with large blocks of lava. Frequent obstructions in the form of booths and workshops block up the thoroughfares, and workmen of all kinds pursue their trades on the pavement. The Marina and the Flora are the finest and most popular places of public resort. The former is a terrace 80 yards wide, extending for about a mile along the seaward side of the town in front of a range of palaces; and at its S. E. extremity is the Flora, a public garden, adorned with statues and fountains. The houses generally are built in the same style as those of Naples, with flat roofs, terraces, and Venetian blinds; they are divided into flats, each flat forming a distinct dwelling. The principal public edifice is the viceroy's palace, situated at the S. W. extremity of the town. It is an ancient irregular building, in various styles of architecture, and was formerly fortified; it contains a fine hall, a spacious court, a chapel built by King Roger in 1129, very rich in mosaics, a picture gallery, an armory, and an observatory. The cathedral is a Gothic structure of the 12th century, to which a modern dome has been added; the interior is supported by 80 pillars of oriental granite, and divided into a number of chapels, some of which are very rich, particularly that of St. Rosalia, the patroness of Palermo. This cathedral contains many mausolea in red porphyry, among them those of Roger, the Norman founder of the Sicilian monarchy, and the emperor Frederic II. The church Del Gesu is remarkable for its architecture and decorations, and that of the Capuchins for its vaults, in which the bodies of the dead monks are seen dried up, standing in niches in various attitudes with their garments on, some being 300 and 400 years old. There are many other churches, 40 monasteries, and 50 convents. The university of Palermo, founded in 1447, is in a declining state; it has a valuable collection of antiquities and a library of 40,000 volumes, but the number of students is small. Palermo is the see of an archbishop. The public charities consist of a principal and several minor hospitals, a foundling institution, and a lunatic asylum. The city has a supreme court of justice for the island of Sicily, a court of appeal for the province of which it is the capital, and a commercial tribunal. The chief manufacture of Palermo is in silk. Cottons, oil cloth, gold and silver articles, and hardware are also produced. The total value of exports in 1852 was $3,493,720; of imports $3,030,415. The tunny fishery carried on from the town is very productive, and employs about 4,000 hands. Communication is kept up between Palermo and Naples both directly by sea, and through Messina and Reggio. In the neighborhood of the city there are many delightful villas. To the west is the royal mansion and park of Bocca di Falco, beyond which is the handsome Benedictine convent of San Martino. The Monte Pellegrino, an abrupt rocky mass to the N. W., is a striking feature in the landscape. It is famed for a cave or grotto to which St. Rosalia, a Norman princess, retired to lead a contemplative life; it is now a sanctuary, and an annual pilgrimage is made to it from Palermo in solemn procession on July 15.—Palermo was the earliest settlement of the

Phœnicians in Sicily, and became the chief seat of their power there. It was by the Greeks called Panormus, a name derived from the excellence of the anchorage near it. In 480 B. C. Panormus was the site of the first attempt of the Carthaginians on Sicily, from whence they were repulsed for nearly a century. It was taken by the Romans in the first Punic war, 254 B. C., and was a colony throughout the continuance of the empire. It fell into the hands of the Goths, was wrested from them by the Byzantine general Belisarius, and in A. D. 835 was taken by the Saracens; it was by them made the capital of the island, and retained the same dignity under the Norman kings, who in the 11th century drove out the infidels and founded the kingdom of Sicily. The court resided at Palermo until Sicily was united to the kingdom of Naples, when it was removed. The city has suffered much from earthquakes, and during a popular insurrection in 1848 was bombarded by the royal troops. In Oct. 1859, an attempted insurrectionary movement was easily suppressed. On April 4, 1860, another rising took place, and the streets of the city were the scene of a brave and desperate struggle between the populace and the royal troops. The insurgents were finally compelled to retire to the interior of the island. Garibaldi, having landed in Sicily May 13, entered Palermo on the 26th, conquering it after a protracted fight in the streets; and by convention the Neapolitan army evacuated the city on June 6, 1860, when it became the seat of the provisional government.

PALES, in Roman mythology, the tutelary deity of flocks and shepherds, holding nearly the same place in the religious worship of Rome that Pan held among the Greeks, and represented by some writers as a male and by others as a female. The festival of Pales, called *Palilia*, was celebrated on April 21, the anniversary of the foundation of Rome by Romulus. The principal rites were the purification of the stables, flocks, and herds by fire and smoke, and the offering of cakes, millet, and milk, followed by prolonged jollity and feasting.

PALESTINE (Gr. Παλαιστινη, derived from the Heb. *Pelesheth*, Philistia), a country of western Asia, now forming a part of the Turkish empire, bounded N. by the Lebanon mountains, which separate it from Syria, E. by the desert now called the Hauran, S. by a desert which separates it from Arabia and Egypt, and W. by the Mediterranean. It lies between lat. 30° 40′ and 33° 32′ N., and long. 33° 45′ and 35° 48′ E.; length about 200 m., average breadth 60 m.; area, 12,000 sq. m.; pop. estimated at 300,000. The country is now divided into the two pashalics of Acre and Gaza, and a part of it is included in the pashalic of Damascus. It is also subdivided into 7 districts, as follows: El Kods, including Jerusalem, Jericho, and about 200 villages; Hebron or El-Khaleel, embracing the S. part of Judæa; Gaza on the S. coast, with the towns of Gaza and Jaffa; Lood, or the environs of ancient Lydda; Nabloos, or ancient Shechem (*Neapolis*) and Samaria; Areta, including Mt. Carmel and a part of the plain of Esdraelon; and Safed, nearly identical with ancient Galilee. Palestine is "a land of hills and valleys," or, as more minutely described in Deuteronomy (viii. 7-9), "a land of brooks of water, of fountains and depths that spring out of valleys and hills; a land of wheat, and barley, and vines, and fig trees, and pomegranates; a land of oil olive, and honey; a land wherein thou shalt eat bread without scarceness, thou shalt not lack any thing in it; a land whose stones are iron, and out of whose hills thou mayest dig brass." From the sea coast on the W. the land rises rapidly to a mountainous height in the centre, and declines on the other or E. side to the low level of the desert. The coast level varies very much in breadth, being in some places only a narrow pass between the mountains and the sea, and in others expanding into plains of considerable width. The southern portion of the coast level is termed in the Scriptures the plain or low country (Heb. *Shefelah*), and the western part of it was anciently the abode of the Philistines. It extends from Joppa to Gaza, and lies between the sea on the W. and the hills of Ephraim and Judah on the E. This plain is naturally very fertile. "Two parallel tracts," says Stanley, "divide the flat plain: the sandy tract (Ramleh), in which stand the maritime cities, and the cultivated tract, which presents for the most part an unbroken mass of corn, out of which rise here and there slight eminences in the midst of gardens and orchards, the seats of the more inland cities. . . . . The most striking and characteristic feature of Philistia is its immense plain of corn fields, stretching from the edge of the sandy tract right up to the very wall of the hills of Judah, which look down its whole length from N. to S." Advancing N., these corn fields give place to a plain less level and less fertile, the Sharon of the Scriptures, a land of fine pastures, which under the Roman empire contained Cæsarea, the Roman capital of Palestine. Beyond Cæsarea the plain grows narrower, until it is terminated by Mt. Carmel, N. of which lies the plain of Acre, about 15 m. in length from N. to S., and about 5 m. in average breadth from the sea shore to the hills on the E. Mt. Carmel is a ridge 6 or 8 m. long and 1,500 feet high, stretching N. by W., and terminating at the sea in a high promontory which encloses on the S. the bay of Acre. North of Mt. Carmel are the Lebanon mountains, which consist of two parallel ranges running N. into Syria, and enclosing between them a beautiful and fertile plain, which is called in Scripture the valley of Lebanon, and by the classic writers was termed Cœle-Syria, the "hollow or enclosed Syria." This plain, only the extreme southern portion of which is in Palestine, is 90 m. in length and about 11 m. in breadth, except at the S.

end, where it is narrower. The W. range of these mountains runs nearly parallel to the sea, into which it projects several promontories; and its average elevation is from 7,000 to 8,000 feet, while its loftiest summit, Jebel-Makmel, rises to the height of 12,000 feet, and is covered with perpetual snow. A little to the N. of Jebel-Makmel is the natural amphitheatre in which grow the few specimens that remain of the famous cedars that once covered all the mountains of Lebanon. This great western range was called Libanus by the classic writers, and to the eastern range they gave the name of Anti-Libanus. In the Scriptures both ranges are called Lebanon. They are each from 10 to 20 m. in breadth, and composed of masses of limestone rock. The southern part of the Anti-Libanus sinks in Palestine into the hills of Galilee, which rise from a table-land elevated about 1,000 feet above the sea, and sloping on the E. to the Jordan, on the W. to the plains of Acre, and on the S. to the plain of Esdraelon. The last named plain extends from E. to W. across the whole breadth of Palestine from the sea to the Jordan. It is often mentioned in the Scriptures under the names of Megiddo, Jezreel, and others, and was the great battle field of Jewish history. It is traversed by ridges known as the mountains of Gilboa and Little Hermon. On its N. E. border stands Mt. Tabor, which, though only 1,800 feet in height, is one of the most remarkable and interesting of the mountains of Palestine. About 6 m. S. of it is a hilly ridge which by some is supposed to be Mt. Hermon, though other writers maintain that Hermon was the loftiest peak of Lebanon. S. of the plain of Esdraelon stretches an unbroken tract of mountains, about 30 m. in breadth, and rising in height toward the S. till near Hebron it attains an elevation of 3,000 feet above the sea. The northern part of this region comprised Samaria and the southern Judæa. The principal mountains of Samaria are Ebal and Gerizim, which rise to the height of 800 feet, the former on the N. and the latter on the S. of a narrow valley in which stands the town of Nabloos, the ancient Shechem, the capital of the 10 tribes after their secession from the rest of Israel.—The hills of Judæa are masses of barren rock, for the most part of moderate apparent elevation, though their general height above the sea is 2,000 or 3,000 feet. On their E. face these mountains descend abruptly to the great valley of the Jordan, the principal river of Palestine. The sources of the Jordan are on the southern declivity of the Lebanon mountains, and after a short course its head streams unite and flow into Lake Merom, now called Lake Huleh; after quitting this the river is sluggish and turbid for a short distance, till it passes over a rocky bed where its mud is deposited. Thirteen miles further on it enters the lake of Tiberias or Gennesareth, which is 620 feet above the sea. On issuing from the S. end of this lake the river enters a valley from 5 to 10 m. wide, through which its course is so winding that within a space of 60 m. in length the river traverses 200 m. and descends 27 rapids. It finally enters the Dead sea after a total direct course from N. to S. of 120 m. At the mouth the river is 180 yards wide and 3 feet deep. Except the Jordan and its branches, the principal of which are the Jarmuk (the ancient Hieromax) and the Jabbok (now called the Zerka), Palestine has no streams considerable enough to be called rivers. Those which are so called in its history are mere brooks or torrents which become dry in summer. The Kishon, which enters the bay of Acre near Mt. Carmel, flows from Mt. Tabor, and in winter and spring is a large stream, while during the rest of the year it has water only in the last 7 m. of its course. The Kanah of Scripture is now the Nahr-el-Kasab, and enters the Mediterranean about 12 m. S. of Cæsarea. The Arnon, often mentioned in Scripture, is now called the Wady Modjeb; it rises in the mountains of Gilead near Katane, and flows by a circuitous course of about 80 m. to the Dead sea. The brook Kedron flows through the valley of Jehoshaphat, on the E. side of Jerusalem, to the Dead sea, but is merely a torrent and not a constant stream. The principal lakes of Palestine are the Dead sea in the S. and the lake of Tiberias or sea of Galilee in the N.—In many parts of the country, and especially in the valley of the Jordan and the vicinity of the Dead sea, there are indications of volcanic origin and earthquakes are often felt. The mountains are mostly of oolitic limestone of a light gray color. Black basalt is very common. The general character of the scenery is stern and sombre. "As a general rule," says Dr. Stanley, "not only is it without the two main elements of beauty, variety of outline and variety of color, but the features rarely so group together as to form any distinct or impressive combination. Rounded hills, chiefly of a gray color—gray partly from the limestone of which they are all formed, partly from the tufts of gray shrubs with which their sides are thinly clothed, and from the prevalence of the olive—their sides formed into concentric rings of rock, which must have served in ancient times as supports to the terraces, of which there are still traces, to their very summits; valleys, or rather the meeting of these gray slopes with the beds of dry water courses at their feet; long sheets of bare rock laid like flag stones side by side along the soil; these are the chief features of the greater part of the scenery of the historical parts of Palestine. Above all other countries in the world it is a land of ruins. In Judæa it is hardly an exaggeration to say that, while for miles and miles there is no appearance of present life or habitation, except the occasional goatherd on the hillside or gathering of women at the wells, there is hardly a hilltop of the many within sight which is not covered with the vestiges of some fortress or city of former ages. The ruins we now see are of the most distant ages: Saracenic, crusading, Roman, Grecian, Jewish, extending perhaps even to the old Canaanitish remains before the arrival of Joshua."—Palestine has a mild and steady climate, with a rainy season in the latter part of autumn, winter and a dry and almost rainless season constituting the rest of the year. The heat of summer is oppressive in the low lands, but not among the hills; and the cold of winter is not sufficient to freeze the ground, though snow sometimes falls to the depth of a foot at Jerusalem. Though the mountains of Palestine have an exceedingly barren appearance, the soil of the plains and valleys is remarkably fertile. In ancient times even the mountains were cultivated by means of terraces; but in consequence of wars and the depopulation of the country, the terraces have been neglected and broken down, and the soil of the mountains swept by rains and torrents into the valleys. "No soil," says Schubert, "could be naturally more fruitful and fit for cultivation than that of Palestine, if man had not destroyed the source of fertility by annihilating the former green covering of the hills and slopes, and thereby destroying the regular circulation of fresh water which ascends as vapor from the sea to be cooled in the higher regions, and then descends to form the springs and rivers." There are now no forests in Palestine, and most of the trees of the country are of small size. The olive, the fig, and the pomegranate are largely cultivated, and are the most common trees. Beside these are the terebinth or turpentine tree, the oak, sycamore, mulberry, pine, pistachio, laurel, cypress, myrtle, almond, apricot, walnut, apple, pear, orange, and lemon. The number of shrubs and wild flowers is very great, and always attracts the attention of travellers; and there is such a prevalence of anemones, wild tulips, poppies, and other red flowers, as to give a scarlet color to the landscape. "Of all the ordinary aspects of the country," says Stanley, "this blaze of scarlet color is perhaps the most peculiar; and to those who first enter the Holy Land it is no wonder that it has suggested the touching and significant name of 'the Saviour's blood drops.'" Palestine has always been famous for its grapes, which are remarkable alike for size and flavor. The vine indeed was the national emblem of the Jews, and according to their traditions its primeval seat was at Hebron, where still the finest grapes are grown. The chief agricultural productions are wheat, barley, maize, and rye. Rice is grown on the marshy borders of the Jordan and some of the lakes. Peas, beans, and potatoes are cultivated, and also tobacco, cotton, and the sugar cane. More attention however is paid to pastoral pursuits than to agriculture, and flocks of sheep and goats are very numerous. Cattle are few and poor. The roads being impracticable for wheeled vehicles, camels are the principal beasts of burden. Asses and mules are much used for riding, and fine Arabian horses are sometimes met with. The chief wild animals are bears, wild boars, panthers, hyænas, jackals, wolves, foxes, and gazelles. Lions, which were found here in ancient times, are now extinct. Birds are few in number, though there are many distinct species, among which may be mentioned the eagle, vulture, osprey, kite, hawk, crow, owl, cuckoo, kingfisher, woodpecker, woodcock, partridge, quail, stork, heron, pelican, swan, goose, and duck. Venomous serpents are unknown, and the most noxious animals are scorpions. Mosquitoes are common, and bees are extremely plentiful, depositing their honey in hollow trees and holes in the rocks. Locusts occasionally appear in vast swarms and devour every species of vegetation.—The present inhabitants of Palestine are a mixed race of very varied origin. In religion they are divided into Mohammedans, Christians, and Jews. The Mohammedans are the dominant and most numerous sect, and are composed of a few Turks who occupy the higher government situations, and of the great body of the common people, who are descended from mixed Arab, Greek, and ancient Syrian ancestors, the last element greatly preponderating. They are a noble-looking, graceful, and courteous people, but illiterate, fanatical, and indolent. The Christians are almost entirely of Syrian race, descendants of those who occupied the country when it was conquered by the Saracens. They belong mostly to the Greek church, of which there is a patriarch at Jerusalem, who has ecclesiastical jurisdiction over the whole of Palestine. Under him are 8 bishops, whose sees are Nazareth, Acre, Lydda, Gaza, Sebaste, Nabloos, Philadelphia, and Petra. There are also a few Maronites and Roman Catholics in the large towns, and in Jerusalem a few hundred Armenians under a patriarch of their own faith. The Jews are about 10,000 in number, and live almost exclusively in the cities of Jerusalem, Hebron, Tiberias, and Safet. They are of foreign origin, mostly from Spain, and a few from Poland and Germany. In dress, manners, customs, and general appearance, the natives of Palestine preserve to a remarkable degree the peculiar characteristics of primitive oriental life, as it is described in the Scriptures. "No European nation," says Mr. Porter in Murray's "Handbook of Syria," "with the exception perhaps of the Spaniards, bears the least resemblance to them. Like Spain, too, the best specimens of humanity are here found among the lower classes. The further we go from the contaminated atmosphere of government offices, the more successful shall we be in our search after honesty, industry, and genuine patriarchal hospitality—the great, almost the only unadulterated virtue of the Arab. They are illiterate of course, and extremely ignorant of all Frank inventions; but still there is a native dignity in their address and deportment, which will both please and astonish those who have seen the awkward vulgarity of the lower classes in some more favored lands. Whether we enter the tent of the Bedawy or the cottage of the fellah, we are received with an ease and courtesy that would not disgrace a palace. The modes of salutation are very formal; perhaps some would call them verbose and even tedious. The gestures used in salutation are also graceful, if a little complicated. The touching of the breast, the lips, and the forehead with the right hand, seems to say that each one thus saluted is cherished in the heart, praised with the lips, and esteemed with the intellect. When peculiar deference and respect are intended to be shown, the right hand is first lowered almost to the ground, as a proof that the individual would honor your very feet, or the soil you tread. A still greater deference is implied in kissing the hand; and the greatest of all is kissing the feet." Dr. Olin, an American traveller, says: "The people are commonly temperate and frugal, which may be denominated oriental virtues. Their situation, with regard to the physical means of comfort and subsistence, is in many respects favorable, and under a tolerable government would be almost unequalled. As it is, the Syrian peasant and his family fare much better than the laboring classes of Europe. The mildness of the climate, the abundance of land and its fertility, with the free and luxuriant pasturage that covers the mountains and the plains, render it nearly impossible that the peasant should not be well supplied with bread, fruit, meat, and milk. The people almost always appear well clothed. Their houses, too, though often of a slight construction and mean appearance, must be pronounced commodious when compared with the dark, crowded apartments usually occupied by the corresponding classes in Europe." With all these advantages, however, the population of Palestine is less than $\frac{1}{15}$ of what it was in ancient times, its increase being checked by polygamy and the oppression of the government, which renders property insecure and thus discourages industry.—Palestine was first known as Canaan, from the 4th son of Ham, from whom its inhabitants were supposed to be descended. This name, however, was confined to the country between the Mediterranean and the Jordan, the principal region E. of that river being called the land of Gilead. Palestine was subsequently called the land of promise, the land of Israel, Judah, Judæa, and the Holy Land. The term Judæa, though in later periods of Jewish history frequently applied to the whole country, belonged, strictly speaking, only to the southern portion of it. In the earliest times in which Palestine or Canaan becomes known to us, it was divided among various tribes, who were by the Jews called collectively Canaanites. The precise locality of these nations is not in every case distinctly known. The Kenites, the Kenizzites, the Kadmonites, and a part of the Amorites lived E. of the Jordan, while W. of that river dwelt the Hittites, the Perizzites, the Jebusites, and most of the Amorites, in the hill country of the south; the Canaanites proper, in the middle; the Girgashites, along the E. border of the lake of Gennesareth; and the Hivites, mostly in the N. among the mountains of Lebanon. The southern part of the coast was occupied by the Philistines and the northern by the Phœnicians. After the conquest of Canaan by the Israelites under Moses and Joshua, 15 centuries B. C., the land was distributed among the tribes. Judah, Simeon, Benjamin, and Dan occupied the south; Ephraim, half of Manasseh, and Issachar the middle; and Zebulun, Naphtali, and Asher the north. Reuben, Gad, and the other half of Manasseh were settled beyond the Jordan. After the division into two kingdoms by the secession of the 10 tribes, the boundary line between them was the northern limit of the tribe of Benjamin. In the time of Christ Palestine was subject to the Romans, and the country W. of the Jordan was divided into the provinces of Galilee, Samaria, and Judæa. Galilee was that part of Palestine N. of the plain of Esdraelon, and was divided into lower or southern and upper or northern Galilee. Samaria occupied nearly the middle of Palestine; but although it extended across the country, it did not come down to the sea shore. Judæa as a province corresponded to the N. and W. parts of the ancient kingdom of that name; but the S. E. portion formed a part of the territory of Idumæa. On the other side of the Jordan the country was called Peræa, and was divided into 8 districts, viz.: 1, Peræa in a limited sense, which was the southernmost district, extending from the river or brook Arnon to the river Jabbok; 2, Gilead, N. of the Jabbok; 3, Decapolis, or the district of 10 cities, which, as nearly as can be ascertained, were Scythopolis or Bethshan, which however was on the W. side of the Jordan, Hippos, Gadara, Pella, Philadelphia or Rabbah, Dion, Canatha, Galasa, Raphana, and perhaps Damascus; 4, Gaulonitis, extending to the N. E. of the upper Jordan and of the lake of Gennesareth; 5, Batanea (Heb. Bashan), E. of the lake of Gennesareth; 6, Auranitis, called also Ituræa, N. of Batanea and E. of Gaulonitis, now known as the desert of Hauran; 7, Trachonitis, extending to the N. of Gaulonitis and E. from Paneas and the sources of the Jordan, where it was separated from Galilee; 8, Abilene, in the extreme N., among the mountains of Anti-Libanus.—Palestine remained subject to the Roman and Byzantine emperors for more than 6 centuries after Christ. The Jews, after frequent rebellions, in one of which, A. D. 70, Jerusalem was destroyed by Titus, were mostly driven from the country and scattered as slaves or exiles over the world. With the spread of Christianity, Palestine became the resort of vast numbers of pilgrims, and Jerusalem was made the seat of a patriarch. The emperor Constantine and his mother Helena erected throughout the land costly memorials of Christian faith, marking with churches, chapels, or altars every spot supposed to have been the scene of the acts of the Saviour. In 610 the Persians under Chosroes invaded Palestine, and, assisted by the Jews to the number of 26,000, succeeded in capturing Jerusalem. It was regained by Heraclius in 622, but was conquered by the Mohammedan Arabs in 637. For the next two centuries the country was the scene of civil war between the rival factions of the Ommyiade, the Abbasside, and the Fatimite caliphs. From the middle of the 8th century it was a province of the Abbasside caliphs of Bagdad till 969, when it fell under the power of the Fatimite rulers of Egypt. In 1073 it was conquered by the Seljookian Turks, but in 1096 it was regained by the Egyptian sultans, in whose possession it was when invaded by the crusaders in the following year. The crusaders made Godfrey of Bouillon king of Jerusalem, and he and his successors reigned in Palestine till Jerusalem was retaken by Sultan Saladin in 1187, and the Christian kingdom overthrown. Two years afterward another crusade was undertaken under Philip, king of France, Richard I. of England, and the emperor Frederic Barbarossa of Germany. It did not succeed in regaining Jerusalem, but partially restored the Christian rule upon the coast. Another crusade in 1216, chiefly of Hungarians and Germans, met with little more success. Still another, undertaken by the emperor Frederic II. in 1228, succeeded in recovering Jerusalem, and the Christian dominion was reëstablished over a considerable extent of territory; but after various vicissitudes of fortune, and in spite of repeated succors from Europe, it at length finally yielded to the arms of the Egyptian Mamelukes in 1291. The sultans of Egypt held it till 1517, when it was conquered by the Turks, in whose possession it has remained till the present time, with the exception of a brief occupation in 1839, '40, and '41 by the forces of the rebellious pasha of Egypt, Mehemet Ali.—See Ritter, *Die Erdkunde* (vols. xiv.-xvii.); Schubert, *Reise nach dem Morgenlande* (1838-'40); Robinson, "Biblical Researches" (Boston, 1841-'52); Olin, "Travels in the East" (New York, 1843); Kitto, "Palestine" (London, 1841); Lord Lindsay, "The Holy Land" (London, 1839-'58); W. C. Prime, "Tent Life in the Holy Land" (New York, 1857); W. M. Thomson, D.D., "The Land and the Book" (New York, 1859).

PALESTRINA, Giovanni Pietro Aloisio da, an Italian composer, born in Palestrina, the ancient Præneste, near Rome, in 1524, died in Rome, Feb. 2. 1594. In 1551, having gained some distinction as a composer of music, he was admitted among the singers of the pontifical chapel, and a few years later was made chapelmaster by Pope Julius III., to whom he had dedicated 4 masses for 4 voices. In 1555 he was dismissed from office by Paul IV., on account of his having quitted the state of celibacy, and for a number of years he occupied successively the position of chapelmaster at the churches of St. John Lateran and Sta. Maria Maggiore. In 1571 he was appointed chapelmaster of St. Peter's, and shortly after maestro to the congregation of the Oratory, both of which offices he retained during the remainder of his life. He was essentially a composer of church music, in the character of which he effected an important reform. The subject of the improvement of ecclesiastical music having been referred by the council of Trent to a committee of cardinals and chaplain singers, a discussion arose respecting the retention or rejection of the secular tunes which then formed the principal themes of most masses and psalms. Palestrina, being called upon to compose a work written in a more severe, simple, and devotional style, as a means of contrasting the two kinds of music, produced his celebrated "Mass of Pope Marcellus," the performance of which caused so profound a sensation that the pope is said to have likened it to the heavenly melodies which St. John heard in his apocalyptic vision. This work formed the model for compositions of its class, and raised Palestrina so high in the estimation of professors of his own time, that two years before his death a collection of psalms in 5 parts was published and dedicated to him by 14 of the greatest contemporary masters of Italy. His music, consisting chiefly of masses, psalms, motets, and madrigals, is grave and learned; and some of that written for the church, when heard in its proper place and under favorable circumstances, affects the mind with emotions of tenderness and awe. The composition exhibits more of the skilful employment of fugues, canons, and imitations, than of genuine inspiration; but the majesty and strength of the melodies, and the intelligent distribution of the vocal parts, must always command the admiration of the musician, notwithstanding that the learning of the composer would fail to be appreciated in the modern concert room. The science of counterpoint, in its infancy in Palestrina's time, was brought by him to a considerable degree of perfection, and to his genius was due the development and classification of the musical ideas which had germinated during many previous ages. He is probably the only composer of the 16th century whose works will survive the vicissitudes of his art. A *Stabat Mater*, and specimens of his masses, motets, and madrigals, have been published by A. E. Choron, but the greater part of his works are to be found only in the large libraries of Europe. Some of his masses and motets are still employed in the service of the Roman Catholic church, and 3 of his motets adapted to versions of the Psalms are in use in the English cathedral service. He was buried in St. Peter's, whither his remains were attended by an "infinite concourse of people," and during the funeral service the *Libera me Domine* was sung. The abbate Baini has published "Memoirs of the Life and Works of Palestrina" (2 vols. 4to., Rome, 1828).

PALESTRO, a town of Piedmont, on the E. bank of the Sesia, 8 m. S. E. from Vercelli, famous for a battle between the Sardinians and Austrians, May 31, 1859. The Austrians had occupied a strong position on the E. bank of the river, and the Sardinians, commanded by King Victor Emanuel, moving from Casale, had made two unsuccessful attempts to cross it, one above Vercelli, and the other at Candia. At Palestro, midway between the two, the effort was renewed. The king on the 30th crossed with Gen. Cialdini's division, and finding the Austrians intrenched drove them back after an obstinate struggle at the point of the bayonet, capturing 2 guns and making a number of prisoners. On the following morning the Austrians, 25,000 strong, attacked the victors and endeavored to retake the village. They were met by the king in person at the head of the 4th division, and Gen. Cialdini commanding the cavalry and the 3d regiment of French Zouaves. The contest was long and violent. The Sardinians, after keeping the defensive for a time, finally repulsed the enemy on his whole front, but were then for a moment outflanked upon the right wing, where there was a bridge of boats across the Sesia, over which Gen. Canrobert was to effect a junction with the king. The Zouaves, unsupported by any artillery, were immediately despatched to save this post, and, rushing upon the Austrian battery planted on the further side of a deep canal, captured 5 guns, made 500 of the Austrians prisoners, and drove 400 into the canal. Three guns and nearly 1,000 prisoners were taken in other parts of the field; and the Austrians then withdrew, to plan a fresh attack for the same evening. It was repulsed, however, and the following morning (June 1) the allies entered Novara.

PALEY, William, an English divine and author, born in Peterborough in July, 1743, died May 25, 1805. He was yet a child when his father removed to Giggleswick, Yorkshire, having been appointed curate of the parish and teacher of the grammar school there. He was educated at home, displaying superior capacity, till in his 16th year he was entered as sizar at Christ's college, Cambridge, his father prophesying at his departure his future eminence, saying: "He has by far the clearest head I ever met with." As a boy he was physically sluggish, disliked athletic sports, and he relates that on his first journey to the university he fell from his pony 7 times. Noted at first for his social habits and qualities, he applied himself diligently to study from his 3d collegiate year, and became senior wrangler on taking his bachelor's degree in 1763. After teaching for 3 years he returned to his college as fellow, became one of the tutors, lectured on moral philosophy and divinity, and was intimate with Mr. Law, afterward bishop of Carlisle, by whom he was presented in 1775 to the rectory of Musgrove in Westmoreland. He then married and retired from the university to his living. He was soon inducted into the vicarage of Dalston in Cumberland, and advanced successively to the living of Appleby in Westmoreland, to a prebendship in Carlisle cathedral, and in 1782 to the archdeaconry of Carlisle. In 1785 appeared his first important work, "The Principles of Moral and Political Economy," of which his lectures at Cambridge had been a general sketch. He received for the copyright £1,000, an unusually liberal payment, which was justified by the popularity of the work. He published his "Horæ Paulinæ" in 1790, the most original and ingenious of his writings, bringing reciprocal supports to the genuineness of St. Paul's Epistles and of the Acts of the Apostles from the undesigned coincidences between them. During the alarm caused by the French revolution in 1791 he produced his "Reasons for Contentment," and received the vicarage of Addingham; and two years later he exchanged the benefice of Dalston for that of Stanwix. In 1794 appeared his "View of the Evidences of Christianity," and 3 additional preferments were immediately conferred on him, one of them, the rectory of Bishop-Wearmouth, being worth £1,000 per annum. The freedom of some of his essays on government, and perhaps also a supposed deficiency in personal dignity in consequence of his homely manners and conversation, prevented his appointment by the court to the bench of bishops. Being made sub-dean of Lincoln, he took his doctor's degree, and addressed the clergy on the dangers and temptations which "beset the clerical character." In 1795 he changed his residence to Bishop-Wearmouth, and consented to act in the commission of peace; in 1800 was attacked by the painful nephralgic disease which ultimately proved fatal; and in 1802 published his "Natural Theology," which he had prepared in the intervals of suffering. He passed his life in the quiet performance of his duties, strictly and regularly dividing his time, enjoying the society of his friends, and mingling familiarly with his neighbors in their labors and recreations. He was fond of angling, spent an hour in his garden twice a day, and read books of amusement for an hour at each of his meals. The mind of Paley was preëminently practical, and it was by practical issues that he estimated religion and philosophy. Few writers have so felicitously and ingeniously investigated and illustrated facts and the inductions from facts. In his own province he grasps all the bearings of a subject, and follows out an argument with unsurpassed minuteness and force. His style is peculiarly simple, clear, and precise, abounding in apt and homely illustrations, and succeeded in popularizing the most recondite knowledge. It has more than any other merit contributed to the permanent reputation of his works. His ethical theory, which underlies his "Moral and Political Philosophy," denies the existence of a moral sense or any original moral constitution of human nature, and makes the expectation of future reward or punishment the only motive of virtuous action. Whatever is expedient is right. Utility is the ground of obligation, but it must be determined with reference to remote as well as direct efforts, to eternity as well as time. Applying this principle to politics, he makes the "will of God as collected from expediency" the ground of civil obedience. If an illegitimate government have become peaceably established so that it advances the good of the subjects, public utility requires that it should be obeyed. On the other hand, if a legitimate government from corruption or neglect is injurious to the public welfare, it should be overthrown. He affirms that the "divine right of kings is on the same footing with the divine right of constables," namely, the law of the land. "The final view," he says, "of all natural politics is to produce the greatest amount of happiness." Expediency prevails even in his view of religious establishments, no one form of which, he contends, is inculcated in the New Testament or is a part of Christianity. The authority of the church is founded on its utility, and therefore the tests and restrictions should be as few and simple as possible. In his view of the "Evidences," the miracles attest the revelation. The reality of the miracles depends on the testimony of the apostles, who profess to have been witnesses of them. The credibility of these witnesses is inferred, first, from the fact that they could not have been deceived as to such occurrences, and, secondly, "that they passed their lives in labors, dangers, and sufferings, voluntarily undergone in attestation of the accounts which they delivered, and solely in consequence of their belief in these accounts; and that they also submitted, from the same motives, to new rules of conduct." They would not thus have suffered and struggled for a lie from which no advantage was to be obtained, when by keeping silent they would have escaped enmity, pain, and death. His greatest work is his "Natural Theology," designed to demonstrate the existence and perfections of God from the evidences of design in the adaptations of nature. He draws his illustrations from familiar objects, especially from animal mechanism, and the argument is strengthened with every new example. The divine power, wisdom, and especially benevolence are thus demonstrated. The proof is entirely *a posteriori*, no appeal being made to man's moral instincts or *a priori* ideas. He does not even inquire into the grounds of belief, the principles which lead the mind to infer intelligence from the evidences of order, but rests satisfied with the fact that it is inevitable for the mind to do so. The work is remarkable for the happy selection of its materials and the rare beauty of its style, and is as interesting as it is convincing. An annotated edition by Lord Brougham and Sir Charles Bell was published in 1836, in 2 vols. 8vo., to which were added by the former in 1839 "Dissertations on Subjects connected with Natural Theology," in 2 vols., and a "Discourse of Natural Theology," in 1 vol. (abridged in Knight's shilling volumes, 4 vols., 1858). It was first pointed out in 1848 that the general argument and many of the illustrations of Paley were borrowed without acknowledgment from a Dutch work by Nieuwentyt, which was published in English under the title of the "Religious Philosopher" in 1718–'19. Yet the impress of Paley's mind and his peculiar literary skill mark his own work throughout. It has been suggested that he made it up, as he did most of his other writings, from the notes taken for his lectures while at Cambridge; that no name was entered with these notes; and that at the time of the final writing he would have been unable to find his original authorities, even if he were aware of his obligation to another. In the preface of another work he remarks: "My method of writing has constantly been this, to extract what I could from my own stores and my own reflections in the first place; to put down that, and afterward to consult upon each subject such readings as fell in my way. . . . I make no pretensions to perfect originality." Beside the above named works, he was the author of various sermons and tracts. In 1789, when the first great discussion in the house of commons on the abolition of the slave trade was expected, he wrote a short treatise entitled "Comments against the Unjust Pretensions of Slave Dealers and Holders to be indemnified," and sent it to the committee. A complete edition of his works was edited by his son, the Rev. Edmund Paley (4 vols., London, 1838). The best biography is that by Meadley (Sunderland, 1809).

PALFREY, John Gorham, D.D., LL.D., an American clergyman, politician, and author, born in Boston, Mass., May 2, 1796. He received his early education at the school of Master Payne in Boston, and at Phillips academy in Exeter, and was graduated at Harvard college in 1815. He studied theology, and was ordained June 17, 1818, as minister of the Congregational church in Brattle square, Boston, in which office he succeeded Edward Everett. In 1831 he was appointed to the Dexter professorship of sacred literature in the divinity school of Harvard university, previously filled by Andrews Norton, and removed to Cambridge, where he has ever since resided. In Oct. 1835, in addition to the laborious duties of his office, he assumed the editorship of the "North American Review," which he conducted till the autumn of 1842. He resigned his professorship in 1839, and from that period virtually retired from the pulpit. In the same year he delivered before the Lowell institute in Boston a series of lectures upon the "Evidences of Christianity," which were afterward published (2 vols. 8vo., Boston, 1843). This work was followed by "Lectures on the Jewish Scriptures and Antiquities" (4 vols. 8vo., 1838–'52). He had previously published "Harmony of the Gospels" (12mo., 1831), "Sermons" (1834), and "Academical Lectures" (1838), beside at various times sermons upon important occasional topics, and in 1839 a 4th of July oration delivered before the city authorities of Boston. In 1844 he was appointed by the governor of Massachusetts secretary of state, which office he filled for several years to the general satisfaction of the public. In 1847 he took his seat in congress as a representative, having been elected by the whigs of the Middlesex district of Massachusetts. He had avowed decided anti-slavery opinions, and had given a practical manifestation of his views by liberating and providing for a number of slaves who had fallen to his share in an inheritance from a deceased relative in New Orleans. In 1846 he had contributed to the "Boston Whig" a series of articles upon the "Progress of the Slave Power," which exerted much influence upon public sentiment in New England, and were afterward collected in a volume. At the organization of the 30th congress he refused on anti-slavery grounds to vote for Robert C. Winthrop of Massachusetts for speaker, and thus drew upon himself the censure and opposition of that portion of the whig party which was opposed to the anti-slavery movement. His reëlection to congress was contested with unusual pertinacity, and after 17 successive elections without a choice, he was defeated. He had now become one of the acknowledged leaders of the free soil party, and one of its most popular speakers and writers. In 1851 he was one of the editors of the "Commonwealth" newspaper, the principal free soil journal of New England; and in the same year was the candidate of his party for the office of governor, but was defeated, and soon after retired from public life. In 1852 he published "A Review of Lord Mahon's History of England," and in 1854 "Remarks on the proposed Constitutional Amendments" and "The Relation between Judaism and Christianity." He now began to devote himself to a task he had long contemplated, of writing a history of New England, to which he has since given undivided and laborious attention. To collect materials for his work, in 1856 he went to Europe, to which he had made a previous visit in 1825, and at the end of two years published the first volume of his "History," which immediately took a high rank in American historical literature by its thorough research, its original views (as for instance on the character of the aborigines), and its attractive and classical style. A second volume appeared in the latter part of 1860, bringing the history down to 1667, and several more volumes are to follow.

PALGRAVE, Sir Francis, an English antiquary and author, born in London in 1788, of a Jewish family named Cohen, which name he exchanged for that of Palgrave. He first became known as the editor of the "Parliamentary Writs" (4 vols. fol.), published by the commissioners of public records in 1827 and 1834. During the progress of this work he was admitted to the bar at the Inner Temple in 1827. In 1831 he published a pamphlet on "Conciliatory Reform" and a "History of England: the Anglo-Saxon period" in Murray's "Family Library." About the same time he was elected fellow of the royal society and of the society of antiquaries. In 1832 he was knighted "for his general services and his attention to constitutional and parliamentary literature." His "Rise and Progress of the English Commonwealth" (2 vols. 4to., 1832) is devoted to the Anglo-Saxon polity and [illegible], and is especially valuable to the student of English jurisprudence. In the following year he was appointed by the king one of 20 commissioners to inquire into the existing state of the municipal corporations of England and Wales; but dissenting from the report of the majority of the commissioners, he presented his own views in a "Protest" (1835). He was soon afterward appointed deputy keeper of her majesty's public records, an office which he still holds. He has published, beside the works already mentioned, *Rotuli Curiæ Regis* (2 vols. 8vo., 1835); "Calendars and Inventories of the Treasury of the Exchequer" (3 vols. 8vo., 1836); "Documents illustrating the History of Scotland" (1837); "Truths and Fictions of the Middle Ages—the Merchant and the Friar" (1837); and an "Essay upon the Authority of the King's Council" (4to., 1834). He is now engaged on a "History of Normandy and England," vols. i. and ii. of which appeared in 1851–'7. He also wrote the 1st edition of Murray's "Handbook to North Italy," and was for many years a constant contributor to the "Quarterly Review" of some of its best known articles on mediæval literature, arts, and institutions, of which his knowledge is profound and extensive.

PALIMPSEST, a term applied to a parchment from which one writing has been erased, to make room for another. The practice of utilizing vellum MSS. in this manner existed among the ancients, but came into much more common use during the dark ages, owing to the great scarcity of writing materials. This was felt earlier in the western than in the eastern empire, as the former was first cut off from obtaining a supply of papyrus from Egypt; and in consequence the Greek palimpsests are found to date back no earlier than the 11th century, while the Latin go back as far as the 8th and even the 7th. In some palimpsests the original writing has been so poorly effaced, that it can be read by a practised eye; for the deciphering of others powerful chemical applications and the use of magnifying lenses are required. A considerable number of palimpsests containing portions of the Septuagint and New Testament have been brought to light; but in classical literature the investigation has been attended by more important results, fragments of Greek and Roman classics supposed to be lost having been recovered, and a promise given of still more valuable fruits when a fuller investigation shall have been made. The first edition of a fragment of a classic author recovered from a paimpsest was brought out in 1773 by Paul James Bruns, who found in a rescribed manuscript of the Vatican collection a fragment of the 91st book of Livy. The great explorer in this department, however, was Cardinal Angelo Mai, who recovered the lost work of Cicero *De Republica;* and similar investigations were prosecuted by Niebuhr, who recovered from a palimpsest manuscript in the library of the chapter of Verona a fragment of the Institutes of the Roman jurist Gaius. Among the latest discoveries are portions of the 1st, 11th, 12th, 13th, and 15th books of Pliny, which were found by Dr. Fridegar Mone in a Benedictine monastery in Carinthia, in 1854; fragments of the Iliad of Homer from a Syrian palimpsest, amounting in all to 3,873 lines; and from a palimpsest of a similar kind fragments from the history of Gaius Granus Licinianus, an author who flourished about the beginning of the Christian era. The last was published by Karl Pertz in 1857.

PALINURUM, a promontory of Lucania in Italy, on the Tyrrhenian sea, about half way between Velia and Buxentum; lat. 40° N., long. 15° 15′ E. It derived its name from the tradition recorded by Virgil, that it was on this spot that Palinurus the pilot of Æneas was buried. Near this promontory, during the 1st Punic war, 253 B. C., a Roman fleet under the consul Servilius Cæpio and Sempronius Blæsus was wrecked and 150 vessels lost; and again in 36 B. C. a portion of the fleet of Augustus was lost on the coast between Velia and Palinurus Portus, a harbor formed by the cape, and now called Porto di Palinuro.

PALISADES, or PALISADOES, in fortification, a barrier made of posts set in the ground close together, sharpened at the top, and standing about 10 feet high.—The term has been applied to cliffs of vertical columns of trap rock, and especially to those which present a conspicuous feature in the scenery of the Hudson river, extending from Fort Lee along the New Jersey shore to the N. line of the state, in one unbroken precipitous wall of more than 20 m. in length. The wall rises a considerable part of the way directly from the river, along the edge of which is a talus of fragments of the trap which have fallen from above. These, however, have within the last few years been very largely removed for paving the streets of New York, and the cliffs themselves are now quarried for furnishing more stone for this purpose. The height of the range near Weehawken is about 310 feet above the river, and from this it gradually rises to 540 feet near the state line; but the Palisades themselves do not generally attain the full height of the narrow trap belt. The range continues near the river in bold rocky bluffs to Haverstraw just below the highlands. There it curves back from the river to the N. W. and W., presenting again high columnar escarpments 300 to 800 feet high facing toward the N. Below Hoboken the range continues S., forming the ridge back of Jersey City, and disappearing at Bergen point. On the extension of its line the rock appears again, forming a smooth ridge on Staten island, which is covered with soil. In it are the quarries that furnished the Russ pavement, which, though of greenstone, has gone by the name of granite. This remarkable belt of trap is a dike forced up through the red sandstone formation, some of the strata of which are seen at the base of the cliffs penetrated by the trap and dipping toward the W. In the valley on the W. side of the dike the red sandstone is the prevailing rock formation. In width the dike varies from ½ of a mile to more than a mile, and in some portions of its range it is repeated in several parallel ridges. On the W. side the slope is gentle.

PALISSY, BERNARD, a French potter, born near Agen about 1510, died in Paris in 1589. He was first employed, as we learn from himself, in "portraiture and vitrifaction," which probably means that he painted on glass; and being acquainted with geometry, he was occasionally employed in surveying and the drawing of maps. In 1539, having seen some ornamented pottery from Italy, he applied himself to discover the method of enamelling which had been brought to such a degree of perfection in that country. To this he devoted his whole life, regardless of expense, labor, disappointment, and hardship; he reduced himself and family to poverty rather than give up his undertaking, and finally succeeded after 16 years of untiring exertion. Having in the mean time become a Protestant, he was imprisoned at Bordeaux during the reign of Henry II.; but through the intervention of some of the nobility, among others the great constable de Montmorency, who employed him in decorating his castle at Écouen, he was released, and even appointed "maker of the king's rustic potteries" (*rustiques figulines*), and resided in the Tuileries, so that he was styled "Bernard des Tuileries," and by some "governor of the Tuileries." Here he improved his discovery, and manufactured earthen figures, and ornaments, which in artistic perfection rivalled those of Faenza or Castel Durante. These were generally used in the decoration of castles and palaces. His lesser works, such as vases, jugs, ewers, and salvers, were eagerly sought for, and are still highly valued. Meanwhile he was engaged in scientific pursuits, and it has been appropriately said that he was to chemistry what Lord Bacon was to philosophy, and that his *Traité de l'art de terre* is the *Novum Organum* of the science. In his other treatises, *De la marne*, *De la nature des eaux et fontaines*, &c., anticipating modern scientific discoveries, he expounded a method of taking soundings, and gave the theory of Artesian wells and stratifications. In 1575 he delivered a course of lectures on his discoveries, and invited all his hearers to propose questions and objections. Many scholars and scientific men accepted this challenge, the celebrated surgeon Ambroise Paré among the number. During the massacre of St. Bartholomew's day, Palissy was saved by Catharine de' Medici; but toward the end of the reign of Henry III. he was again involved in serious difficulties on account of his religion. Probably through the enmity of the leaguers, he was arrested and confined in the Bastile, where he died. The name of Palissy, scarcely noticed by his contemporaries and completely ignored during the 17th century, was brought again to light by Fontenelle, Buffon, and others, who pointed out the value of his scientific researches. An edition of his works was published in 1777 by Faujas de St. Fond and Gobet, and a better one in 1844 by A. Cap (Paris). J. Salles has written an *Étude sur la vie et les travaux de B. Palissy* (8vo., Nîmes, 1855), and his life has also been written by H. Morley (London, 1852). Specimens of his art are preserved in the museums of the Louvre, of Sèvres, of the Cluny hotel in Paris, and of the Favorite near Munich.

PALLADIO, Andrea, an Italian architect, born in Vicenza, Nov. 30, 1518, died there, Aug. 6, 1580. He derived the principles of his art from the writings of Vitruvius and Alberti, and previous to his 30th year made 3 journeys to Rome, where he took careful drawings and measurements of the principal ancient edifices. Establishing himself in Vicenza, he was first brought into notice by his design for the *loggie* or open porticos surrounding 3 sides of the Palazzo della Ragione, immediately after the completion of which he was summoned to Rome by Paul III. to give his advice respecting the works then in progress at St. Peter's. The pope dying before Palladio's arrival, his mission seems to have been without any important result; but after his return to Vicenza he was for many years busily employed in the construction of villas and private mansions there and along the banks of the Brenta. In these were developed the composite Italian style called the Palladian, which is still one of the most popular in architecture. The most famous of them is the Rotonda Capra, known as Palladio's villa, just outside of Vicenza, of which Goethe said: "It may be that architecture never pushed splendor to a higher pitch." Like most of the structures in the neighborhood of Vicenza erected by him, it has suffered so severely from neglect and abuse as to give no just idea of the merits of the original design. The rising fame of Palladio caused him in time to be invited to Venice, where he designed two churches, that of San Giorgio Maggiore, commenced in 1566, but not completed until 1810, and that known as Il Santissimo Redemtore, the latter of which is considered one of his finest works. He also designed the atrium for the convent Della Carita and the façade of San Francesco della Vigna. He subsequently passed some time at the court of Emanuel Philibert, duke of Savoy, who paid him distinguished honors. Among other important works by him were the magnificent Palazzo Barbaro at Maser in the Trevigiano, and a palace at Montagnana for Francesco Pisano. His last work was the Teatro Olimpico at Vicenza, the most curious structure designed by him, and which has been the subject of very conflicting criticisms. It was not finished until after his death. His merits as an architect have been as much overrated by such admirers as Goethe, Quatremère de Quincy, Hope, and Beckford, as they have been ignored by others; but the errors and inconsistencies pointed out in his designs are not in all cases his own, many buildings attributed to him having been varied in the execution, or designed by others. The charm of the Palladian style has been said "to consist entirely in a certain justness of proportion with which Palladio has distributed all the parts of his architecture; the basement being neither too high nor too low for the order above it; the windows of the right size and well spaced; and all the parts and proportions suited to one another. The same excellence is found in his orders, and the relation of the columns, capitals, entablatures, &c. He has not adopted the theoretical rules of another, but has drawn them all from what he felt to be pleasing to himself, and suited to his own style of art; but they are not good when united to a more solid and less ornamental manner." (Wood, "Letters from an Architect.") He wrote a treatise on architecture (fol., Venice, 1570), which has several times been reprinted in very costly style, and a small work entitled *Le antichità di Roma*, which appeared after his death.

PALLADIUM, a wooden image of Pallas or Minerva, which is said to have been thrown down to earth by Jupiter. It fell in the neighborhood of Troy, where Ilus the founder of that city, who had just prayed for favorable omens, regarding it in that light, took possession of it and built for it a sanctuary. It was a tradition that Troy could never be taken while this image remained in the city, and therefore Ulysses and Diomedes were commissioned to steal it, and succeeded in the undertaking. Other accounts state that the palladium was carried to Italy by Æneas, and in that country the cities of Rome, Lavinium, Luceria, and Siris claimed to possess it. Several cities of Greece also pretended to have this image.

PALLADIUM (symbol Pd, chemical equivalent 53.24), a metal discovered in 1803 by Wollaston. With a number of other metals it is contained in native platinum, and sometimes constitutes 1 per cent. of the mixture. It also occurs with the gold of Brazil and in combination with selenium in the Hartz. It is separated from the platinum sand by dissolving this in *aqua regia*, expelling the excess of acid by evaporation, and then adding a solution of cyanide of mercury until precipitation ensues. The palladium is the only metal thrown down; it is in the form of a bright yellow powder, which when heated to redness becomes pure palladium. This metal is grayish white, having much resemblance to platinum in color and lustre. It is both ductile and malleable, a harder and more fusible than platinum, and of specific gravity 11.3 to 11.8. Being rarely obtained, it is little employed for useful purposes. Beams of delicate balances and nicely graduated scales of instruments have been made of it, for which purpose it is well adapted on account of its unchangeable character when exposed to the action of the atmosphere and of sulphuretted hydrogen. It has also been employed by dentists as a substitute for gold in fastening artificial teeth. When at a red heat and submerged in oxygen gas, its surface acquires a fine blue color by slight oxidation. By nitric acid it is oxidized and dissolved. Its alloys with silver, iron, tin, lead, arsenic, and bismuth are fusible and brittle; with gold hard and white; and with nickel ductile. With mercury it forms a fluid amalgam. Three oxides of palladium are known, viz.: Pd_2O, PdO, and PdO_2. The last is also called palladic acid. Neither these nor the salts of the metal are specially important.

PALLADIUS. I. Surnamed SOPHISTA or IATROSOPHISTA, a Greek medical writer, of whose life nothing is known except that he must have flourished between the 3d and 9th centuries of our era. He was the author of commentaries on the works of Hippocrates, "On Fractures," and "On Epidemics," and of a treatise "On Fevers," all of which are extant. II. RUTILIUS TAURUS ÆMILIANUS, a Roman writer on agriculture, who lived about the middle of the 4th century of our era. He wrote a treatise *De Re Rustica* in 14 books, in which he described in the form of a farmer's calendar the agricultural operations proper to each of the 12 months. The first book is introductory, and the last a poem in elegiac verse on the art of grafting. The work was very popular in the middle ages, and has been several times printed. There is an English translation of it by T. Owen (8vo., London, 1807). III. An early Christian father, born probably in Galatia about 367. At the age of 20 he embraced an ascetic life, and set out on foot to visit the solitaries of Upper Egypt, Libya, Syria, Palestine, Mesopotamia, and Italy. In 400 he was appointed bishop of Helenopolis in Bithynia, whence he was translated about 20 years afterward to the see of Aspona in Galatia. He wrote a collection of biographical notices and anecdotes of the monks whom he had seen in his travels, which is generally known as "the Lausiac history," from being addressed to Lausus, a chamberlain at the imperial court. It was edited by Meursius (Leyden, 1616). A Greek "Life of St. Chrysostom" and a treatise "On the Nations of India and the Bragmans (Brahmins)" have also been attributed to the bishop of Helenopolis, but their authorship is uncertain. Palladius was an adherent of Origen, and a bitter opponent of St. Jerome.

PALLAH. See ANTELOPE.

PALLAS. See ATHENA.

PALLAS, PETER SIMON, a German traveller and naturalist, born in Berlin, Sept. 22, 1741, died there, Sept. 8, 1811. He was educated at the universities of Halle, Göttingen, and Leyden, at the latter of which he took his doctor's degree, and after a year's residence in England settled in 1763 at the Hague. He there pursued with avidity the study of zoology, and in 1766 published his first works of importance, *Elenchus Zoophytorum* (8vo.), and *Miscellanea Zoologica* (4to.), both treating of several classes of animals before erroneously included in the family of worms. The reputation acquired by these works procured him the offer from Catharine II. of a professorship of natural history in the imperial academy of sciences in St. Petersburg, where he established himself in 1767. Scarcely had he commenced his new duties when he was invited by the empress to join a scientific expedition into Siberia and other remote portions of the empire, for the purpose of observing the transit of Venus and of investigating the geography and natural history of the countries visited. The expedition set out in June, 1768, and during the next 6 years Pallas traversed a considerable part of southern Russia, the Caucasus, and central and southern Siberia, penetrating as far eastward as the frontiers of China. He returned to St. Petersburg in July, 1774, with shattered health, one of the few survivors of the expedition, and for many years was occupied with literary and scientific studies; but having in 1793 paid a visit to the southern part of the Crimea, he was so delighted with the climate, that he removed thither in 1795, and, with means liberally furnished to him by Catharine, built a handsome seat, in which he resided for 15 years. The climate proving less beneficial to his health than he had anticipated, he removed in 1810 to Berlin, where he died a few months after his arrival. His works are numerous, and according to Cuvier "have placed the name of their author in the first rank of naturalists." Among the most important are the *Spicilegia Zoologica* (4to., Berlin, 1767–'80), intended for the description and illustration of new or little known species of animals, and of which those parts devoted to the polar bear, the musk, and other quadrupeds encountered by him in Siberia, are of unusual interest; "Travels through different Provinces of the Russian Empire" (3 vols. 4to., St. Petersburg, 1771–'6), a work of much authority in geography and natural history, notwithstanding it was compiled during the author's travels, and without opportunities for consulting books of reference; *Novæ Species Quadrupedum e Glirium Ordine* (4to., St. Petersburg, 1777), containing descriptions of different species of the *rodentia* discovered by himself; "History of the Mongolian Nations," in German (2 vols. 4to., St. Petersburg, 1776–1801); "Observations on the Formation of Mountains" (4to., St. Petersburg, 1777); *Flora Rossica* (2 vols. fol., St. Petersburg, 1784–'8), a botanical work undertaken at the request of the empress, which was never completed; "Travels through the Southern Provinces of the Russian Empire in the Years

1793–'4" (2 vols. 4to., Leipsic; English translation, 2 vols. 4to., London, 1812); and *Zoographia Rosso-Asiatica* (3 vols. 4to., St. Petersburg, 1831), a work destined to embrace all the animals found in the Russian dominions, but of which the author only lived to complete the account of the vertebrates. In addition to these he contributed numerous papers on zoology, botany, geology, and kindred subjects to the "Memoirs" of the imperial academy of St. Petersburg, and other scientific publications; and the *Nordische*, *Neue nordische Beiträge*, &c., published by him in St. Petersburg between 1781 and 1796 (7 vols. 8vo.), contain many valuable essays on various branches of physical science. He also assisted in preparing at the command of the empress the vocabulary of all the languages of the empire, *Linguarum totius Orbis Vocabularia* (2 vols. 4to., St. Petersburg, 1786–'9; 2d ed., 4 vols., 1790–'91). Not the least important of his papers were those on the fossil remains discovered by him in Siberia. His services to modern geology were considerable, and according to Cuvier he is entitled to the credit of having discovered "the general law, which has since been completely verified, of the succession of the three primitive orders of rocks, the granite in the centre, the schistous on their sides, and the calcareous externally."

PALLAVICINO, FERRANTE, an Italian author, born in Parma in 1615, executed at Avignon, March 5, 1644. He became an Augustinian friar, and at first was reputed one of the most devout and learned members of his convent; but falling in love with a fair Venetian, he put off the frock and plunged into a career of licentiousness, supporting himself for some time by writing immoral books. He afterward went to Germany as chaplain to the duke of Amalfi, but without interrupting his debaucheries, and on his return put secretly to press a satirical work entitled "The Courier robbed of his Mail," to which the secretary of the Venetian republic had previously refused his imprimatur. The transaction being discovered, he was thrown into prison by the papal nuncio, but obtained his liberty again mainly by the assistance of one of his mistresses. When the war broke out between Pope Urban VIII. and the duke of Parma, he wrote in favor of the duke, using the most violent expressions against the pope and his nephews the Barberini, and among other pamphlets published *Il divorzio celeste*, in which he intimated that a divorce had taken place between Christ and the church. Afraid to remain in Italy, he resolved to visit France; but a fellow traveller betrayed him into the hands of the papal authorities at Avignon, and he was tried, condemned, and beheaded for apostasy and treason. He wrote a number of short pieces characterized by an extremely graceful style, but his celebrity is due quite as much to his personal history as his literary genius. His *Opere permesse*, edited by Brusoni with a life of the author (4 vols. 12mo.), appeared at Venice in 1655, and his *Opere scelte* at Geneva in 1660.

PALLAVICINO, SFORZA, an Italian cardinal and author, born in Rome in 1607, died June 5, 1667. He was heir to a marquisate, but embraced the ecclesiastical state, and in 1637 became a Jesuit. He was made cardinal by Pope Alexander VII. His principal work is a "History of the Council of Trent," in Italian, written to counteract the work of Paul Sarpi on the same subject. The first edition (3 vols. fol., Rome, 1686–'7) is the best. It has been frequently reprinted and translated into Latin and French. Cardinal Pallavicino also wrote treatises "On Happiness" and "On Style in Written Composition;" a commentary on the *Summa* of Thomas Aquinas; a "Course of Theology;" "The Art of Christian Perfection," &c.

PALLIUM, or PALLA, an outer garment worn by both sexes among the Greeks, and occasionally among the Romans. It was a square or rectangular piece of woollen, linen, or cotton cloth, varying in color, texture, and ornament according to the taste of the wearer; and was worn in various ways, sometimes being merely wrapped around the body without regard to grace or appearance, sometimes fastened over the right shoulder with a brooch, and sometimes thrown over the left shoulder, brought across the back and under the right arm, and then thrown over the left shoulder again. The women's pallium was generally, though not always, of finer texture and more elaborate ornamentation than the men's; and the fops of ancient Athens used not unfrequently to array themselves in this effeminate costume. The pallium among the Greeks supplied the place of the toga among the Romans.—Pallium is also the name of an ecclesiastical ornament in the Roman Catholic church, worn by archbishops who are not merely titular. It was originally a sort of mantle or cape, but at present it consists only of a white woollen band about 2 inches wide which is worn around the shoulders and crossed in front. Crosses are worked upon it in black, and ornaments are attached to the ends. It is fastened in its place by golden pins. The pallium is made at Rome of the wool shorn from two lambs which the sisterhood of St. Agnes offer every year on their patronal feast while the *Agnus Dei* is sung at mass. It is sent by the pope to every newly appointed archbishop, and is considered the distinctive badge of the metropolitan dignity. The origin of the pallium is uncertain. Some Roman Catholic writers trace it to St. Linus, the second pope. According to others Constantine bestowed it upon Pope Sylvester, it being then a part of the imperial habit. At the council of Lateran in 1215 Pope Innocent III. decreed it to be a mark of the plenitude of the apostolic power, and that no archbishop should exercise his functions until he had received it.

PALM, a name applied to a number of endogenous plants, found in their greatest perfection within the tropics. They all agree in general characters, being monocotyledonous, with arborescent stems, rigid divided leaves, hexapetaloideous flowers, and in the embryo lying in a cartilaginous or fleshy albumen at a distance from the hilum. They are included in the natural order *palmaceæ*, which embraces the most interesting forms of the vegetable kingdom. The stem or trunk varies from the most humble condition, not unlike that of some globular cactus, to the most slender and graceful or large and well proportioned columns a hundred feet high; and in the leaves there exists as great a variety of forms, from those that are finely divided to those which are broad and fan-like, and of color from the liveliest green to a dull and ashy hue. The inflorescence shows itself below the leaves, while its shape is essentially modified by the mode in which it springs forth from the stem or trunk; and the fruit also has its variations both in color and in shape. The arborescent stem of the palms is usually a simple shaft, only now and then shrubby and branching; it is rough with the withered and persistent bases of the leaves, or else with the scars where they have at last fallen, and it is sometimes armed with stiff spines. The leaves are alternate, with a very hard epidermis and a distinct petiole, from the base of which a coarse network (*reticulum*) sometimes separates near the trunk. They are always borne in clusters at the summit, are folded together before expansion, and are of very large size, pinnate or flabelliform, but sometimes nearly split in two, their veins running in a parallel direction and the spaces between them plaited. Like the arums, their flowers are inserted upon a spadix enclosed in a sheath (spathe), which is proportionate in size to the leaves. Each flower is small, but the entire number contained in a single spathe is sometimes enormous; the perianth is 6-parted, arranged in 2 series, and persistent, the 3 outer segments smaller than the rest; the stamens, usually definite in number, are inserted into the base of the perianth; commonly they agree with the parts of the perianth, but sometimes they are only 3, and in a few genera where the flowers are polygamous the number is indefinite; the ovary has 1 to 3 cells or is deeply 3-lobed; the fruit berry-like (baccate) or drupaceous, and sometimes with very large, fibrous flesh; the albumen cartilaginous, and either ruminate or else furnished with a central or ventral cavity. The distinct species of the palms are supposed to exceed 1,000, and it is the opinion of Humboldt and Martius that there are yet a great many to discover in the equinoctial regions; though Schouw, a writer upon botanical geography, thinks we are already acquainted with the greater number, yet 65 new species of the East Indian palms were made known to science through the discoveries of Blume and Griffith alone. The actual limits of their growth seem to indicate in what unexplored regions of the globe they are to be sought; and so tropical is their habitat that Bonpland found a new species in almost every 50 miles of his South American travels. The most northern limit in Europe is lat. 43° 44′, where the *chamærops humilis* grows; and in the United States it is 34° 36′, where the palmetto occurs. The ascertained species of the palms are arranged into about 70 genera, which have been divided by the best writers upon this subject into 5 principal tribes or families. Typical or prominent species of each one of these will be given as illustrations. 1. The *arecinæ* (Endlicher), of which we may notice the betel nut palm (*areca catechu*, Willd.). This is described by Roxburgh as being the most beautiful palm in India; its trunk is remarkably straight, 40 to 50 feet high, and generally 20 inches in circumference, equally thick in every part and smooth; its leaves are pinnate, the leaflets about 3½ feet long, and widest at the end; the nuts of the baccate fruit about the size of a hen's egg, of a reddish yellow color when mature, enclosed in a fibrous rind ½ inch thick. It is this nut which forms the universal masticatory of the East Indies, its flavor being austere and astringent, which is overcome by a mixture of lime wrapped in the leaf of the betel pepper. The cabbage palm is another species (*A. oleracea*, Linn.); its trunk is very tall and even; its leaves are pinnate, the pinnæ linear, very tapering-pointed, bifid; the spadix covered with white, deciduous, downy scales; flowers monœcious, petals imbricating in the fertile, but valvate in the barren; ovary 3-celled; spathes 2, membranous or fibrous. This species occurs abundantly in the mountainous districts of Jamaica and other West India islands, with a trunk not more than 6 or 7 inches in diameter, and of the height of 100 to 200 feet. The terminal bud of unexpanded leaves is very delicate and tender, forming the "cabbage," and considered a great delicacy when eaten raw or boiled; the kernel of the nut of the fruit is likewise white and sweet. Sometimes a large tree is felled for the sake of the cabbage; if it be left upon the ground and exposed to the air, the centre of the entire stem soon rots, leaving only the rind, which is very hard; and by this internal decay a natural cylinder or pipe is formed. The tree when growing is described as very graceful, the large pinnated leaves appearing only at the very apex and of a deep green color. 2. The *calameæ* (Lindley), represented in the rattan canes of commerce, have very slender stems and the general habit of the grasses, and were once considered as an intermediate link between the palms and the arborescent *gramineæ*. According to Blume, the several species are polygamous-diœcious or diœcious; spathes several, incomplete; flowers sessile in spikes, calyx 3-toothed or trifid, petals 3, united at base, stamens 6; anthers arrow-shaped, fixed by the back, accompanied by a rudiment of an ovary; the true ovary 3-celled, surrounded by a staminiferous cup usually sterile; style scarcely any; stigmas 3, distinct or combined; berry protected by overlapping scales, 1-seeded, seed surrounded by a succulent flesh; leaves pinnated. The *calami* principally grow in the hotter parts of the East Indies, in the forests, climbing over trees and bushes by means of prickles, which are hooked backward, and, by the shortened and hardened terminal pinnæ of the leaves, extending themselves to great lengths. The stem of the cable cane (*calamus rudentum*) grows 500 feet long, and one other kind mentioned by Rumphius grows to the length of 1,200 feet. Several species are supposed to furnish the rattans of commerce, which are used in the arts. The salxck (*C. salacca*) is cultivated in Java for the sake of its fruit, which is about the size of a walnut, containing 2 or 3 sweet kernels. The resin called dragon's blood of the best kind is derived from the outside of the ripe fruits of the *C. draco* and several other kindred species. The true sago palm (*sagus lævis*, Rumphius) is a native of the Indian archipelago. Sago is a kind of starch secreted by the tree for the use of its flowers and fruit, and is most abundant just before the evolution of the flower bud; the trunk is then cut down near the base, the pith extracted, sliced, and beaten in water until the starch separates from the fibres; these float upon the top and are skimmed off; the starch is repeatedly washed again, and finally put up in baskets made of the leaves of the tree; a single tree produces 500 to 600 pounds; this crude flour or powder passes through a process of roasting by which it is partially granulated, when it assumes the shape of small globules, and is in a condition for exportation. The leaves of the sago palm are pinnated, the flowers monœcious, the spadix branched without any common spathe, and the fruit hard, shining, its surface divided into numerous rhomboidal spaces. Another kind of sago is derived from the prickly sago palm (*S. Rumphii*, Willd.), a tree with pinnated foliage, the petioles and spathes guarded by strong prickles; this sort is chiefly used in India, and is rarely exported. 3. The *borassinæ* (Endl.) are represented in the wine palm (*borassus flabelliformis*), which, according to Sir William Jones, is justly considered the king of its order, and is a magnificent tree. It is described by Roxburgh as having diœcious, hexandrous flowers, the calyx and corolla in the barren consisting each of 3 distinct pieces, and in the fertile of from 3 to 12 pieces in a confused state; the ovary 3-celled, changing into a 3-seeded drupe. The plant grows all over India, both on the continent and in the islands, where it is esteemed of the greatest use on account of its vinous sap and the sugar that is extracted from it. Its trunk is from 25 to 40 feet high, and perceptibly thicker at the base than at the summit; the leaves are fan-shaped, 4 feet long, and borne upon stalks of the same length, which are spiny at their edges; each leaf is divided into 70 or 80 rays, the largest of which are placed at the centre; the fruit is of the size of an infant's head, 3-cornered, with the angles rounded and a little furrowed; it consists of a thick, fibrous, rather succulent, yellowish brown rind containing 3 seeds of the size of a goose's egg; the pulpy matter of the young seeds is cool and refreshing, but when ripe this pulp is changed into a hard bluish albumen, insipid and uneatable. This however is not the only palm which yields sugar and wine. The doom palm of upper Egypt is the *hyphæne coriacea* of Gaertner, and strongly contrasts with the usual character of the order by its dichotomous or forked stem; clumps of it appear near Thebes, and vast groves of it are found in the adjacent country. The fruit is about the size of an orange, angular, irregularly formed, of a reddish color, and has a spongy, tasteless, but nutritious rind, forming a common article of food among the wandering Arabs. The albumen of the seed is hard and semi-transparent, and is turned into beads and other small ornaments. The sea cocoa (*Lodoicea Sechellarum*, La Billardière) is a noble palm with a stem 80 feet high, and found only on the Seychelles, a small, rocky, and mountainous group of islands N. E. of Madagascar. Its fruit is very large, bilobed, and singularly shaped; for many years it was only occasionally met with floating at sea, and its rarity was so great that it was esteemed one of the most costly of regal gifts. Its habitat was finally discovered at these islands in 1743, after which it was described by Sonnerat; others assert that Alexis Marie de Rochon had noticed it as early as 1679. Great prices were at one time offered for a single nut, and one was valued as high as £400; specimens however are by no means rare in museums now. 4. The *coryphinæ* (Endl.) include the talipot tree of India (*corypha umbraculifera*, Linn.), which is a majestic palm with a stem rising to the height of 100 feet, terminated by a crown of immense leaves 18 feet long and 14 feet broad exclusive of the petiole; from the centre or bosom of these issues its terminal bud, which when the tree has arrived at maturity unfolds into a branching and outspread collection of lovely, fragrant, yellow blossoms, the odor of which extends to a great distance; each flower consists of a 3-toothed calyx, 3 petals, 6 stamens, and a 3-celled ovary. The fruits are round, 1-seeded berries, which are hard and of the size of cherries, but not good to eat. The inflorescence and fruiting occur but once in the lifetime of the plant, which after they have been perfected dies. The trunk is full of a mealy, pith-like substance, from which a sort of bread is made; the leaves are used for thatch, and as a writing material, for which an iron style is employed; and fans of an enormous size are also made of them. Another species is the tara or talliera (*C. talliera*, Roxb.), an elegant and stately tree inhabiting Bengal, a trunk 80 feet high and nearly of equal thickness throughout; its leaves are in 80 divisions, each 6 feet long by 4 inches broad, radiating from the point of a leafstalk 5 to 10 feet long, and covered with strong spines on the edge; the spadix, which issues from the apex of the tree and from the centre of the leaves, forms an immense, diffuse, ovate panicle, 20 or more feet in height; the fruit is small, wrinkled, of a dark olive or yellowish green color. The date (*phœnix dactylifera*, Linn.) is probably the best known of the palms, and most likely the identical species to which the ancient name *palma* was applied; it was the palm tree of the Sacred Scriptures, and made emblematical of Judæa as we see it represented on coins. It occurs spontaneously in the desert and around Palmyra, which indeed is supposed to have been so named from its presence. It was introduced from Egypt and northern Africa into the south of Europe, being common also in Syria, Arabia, and the lower parts of Persia. The date palm is diœcious, its fertile or pistilliferous flowers being borne on a different tree from the stameniferous ones, rendering the crop entirely useless unless the tree has been either naturally or artificially impregnated; and it has always been the custom of the Arabs to hang clusters of stameniferous flowers on those trees which bore only pistilliferous ones. Hasselquist gives interesting accounts of this custom, which he tells us is preserved by the institution of a feast at the proper season of the year, called "the marriage of the palms;" and so well is this practice known, that the half savage tribes destroy the subsistence of their enemies by cutting down the male trees during their predatory excursions. Desfontaines and Kümpfer both corroborate this statement by their own experiences. The genus *phœnix* is distinguished by its sessile, diœcious, yellowish white flowers, which are borne on a branched spadix enclosed in a simple spathe; the calyx is urceolate, 3-toothed; the corolla has 3 petals (those of the fertile flowers are convolute); the stamens are 3 to 6, the filaments very short, anthers linear; in the fertile flowers the pistil has 3 ovaries distinct from each other, only one ripening; stigmas hooked; drupe 1-seeded; seed marked on one side by a longitudinal furrow, albumen reticulate, embryo in the back of the seed; the trunk is of moderate size and ringed or marked with the seams of the fallen leaves; the leaves are pinnate, with linear pinnæ; fruit soft, of a reddish yellow color, and edible. The toddy tree (*P. sylvestris*, Roxb.) is common in the drier parts of India, with a tall, pretty thick trunk, and large yellowish or reddish fruit; it yields the *tarri* or palm wine, obtained by removing the lower leaves and sheaths, and cutting a notch into the centre of the tree near the top, from which the liquor issues. This, when collected, is either drunk fresh from the tree, or boiled down into sugar, or fermented for distillation, when it gives out a large portion of spirit. Baskets and mats are made of its leaves. 5. The *cocoineæ* (Endl.) are represented in the cocoanut tree, the most interesting of the genus *cocos*, the essential characters of which, according to Martius, are in its having upon the same spadix both male and female flowers, which are sessile; those of the male with a 3-leaved calyx, 3-petalled corolla, and 6 stamens; and those of the female 3 sepals and 3 petals rolled together, ovary 3-celled, stigmas 3 sessile; drupe fibrous, putamen with 3 pores at base, albumen homogeneous, hollow; embryos next one of the pores at the base; stem either lofty or middle-sized, slender, ringed or crowned with the base of the petioles; wood pale, fibrous; leaves pinnated, pinnæ lanceolate or linear; flowers pale yellow; drupes brown, green, or orange color, rather dry. (See Cocoanut Tree.) The oil palm belongs to the genus *elæis* of Jacquin; it is the *maba* of the natives of Congo, and common all along the W. coast of Africa. The branches of inflorescence are unisexual; in the male flowers the sepals are 3, papery, dry; the petals are membranous lanceolate; the ovary 3-celled; the fruit an angular 1-seeded drupe with a fibrous, oily rind. The stem of the oil palm (*elæis Guineensis*, Linn.) is tall, of about 10 inches diameter, rough and bristling with the persistent bases of the petioles, which are spiny at their edges; the leaves are pinnate, 15 feet long, with 2 rows of ensiform pinnæ each 18 inches long; the fruit is ovoid, of the size of a pigeon's egg, with its outer fleshy cover of a golden yellow color, the foramina of the putamen at the apex. The fruits (drupes) contain an emollient, demulcent, fixed oil in great abundance. (See Palm Oil.) This palm, according to Lindley, though a native of Guinea, is now common in tropical America. The vegetable ivory tree (*phytelephas*, Ruiz and Pavon) is commonly called the tagua plant, and in Peru it is termed the negro's head. The genus is referred to the natural order *pandaneæ* of Brown, but it seems to hold an affinity with the true palms in its pinnated fronds and erect stem; its flowers are arranged on a spadix enclosed in a universal spathe, and are of 2 sorts, the one containing stamens and pistils and the other only pistils; there are no visible sepals or petals; the style is divided into 5 or 6 segments; the fruit consists of quadrangular drupes, which are aggregated into a large, muricated, coriaceous head; the seeds are about the size of a pigeon's egg, and of an oblong-ovate, triangular form; when young they contain a crystalline liquor without scent or taste and of refreshing quality, but in time this is converted into a milky fluid, and finally into a hard substance resembling ivory. There are two species, the large-seeded (*P. macrocarpa*), with a low stem, and the small-seeded (*P. microcarpa*), with little or no stem. In external appearance they look like something between a *cycas* and a true palm. These trees flourish in the valleys of the Peruvian Andes and on the borders of the river Magdalena. Their indurated seeds have been used by the natives for making buttons, heads to walking sticks, and trinkets; but lately they have received the attention of other people in the manufacture of such articles as required the material of ivory. The structure of the albumen singularly resembles that of bone, traversed as it is by canals and tubes, but the same had been observed before in the seeds of the *sagus*, *cocos*, &c.—The palms are represented in North America by the palmetto (*sabal*, Adanson), which has perfect, sessile, bracted flowers, the calyx cup-shaped, 8-cleft, the corolla 8-petalled, stamens 6, hypogynous, filaments subulate, distinct, anthers cordate-ovate, horizontal; ovary 8-celled, styles united, 8-angled, stigma capitate, obtuse; fruit a 1-seeded drupe, embryo dorsal, albumen homogeneous, horny; stem simple or branched, erect or creeping; leaves fan-shaped, long-petioled, with the division 2-cleft at the apex, and often with long, thread-like filaments interposed; sheaths at base commonly composed of interlaced, dry fibres; spadix long, branching, with sheathing spathes at the joints; flowers small, white, rigid; drupe oblong or globose. The cabbage palmetto (*S. palmetto*, Roemer and Schultes) sometimes attains the height of 40 or 50 feet and a diameter of 12 or 15 inches. The leaves, 5 or 6 feet long, grow at the very summit of the tree; they are cordate in outline, pinnatifid, fan-shaped, recurved at the top, mostly shorter than the common concave petiole; the flowers are borne on naked panicles, and the drupe is bluish black and globose. This tree grows along the sea coast of South Carolina and Georgia, confined to the neighborhood of salt water, and preferring damp soils. Elliott speaks of its great value as a timber, not liable to attack by the ship worm (*limnoria terebrans*), incorruptible in salt water, and of importance in submarine construction; its leaves can also be used in the manufacture of hats, baskets, and mats, and for many purposes of domestic economy; and the unexpanded young leaves, or "cabbage," constitute one of the most delicious vegetables of the table. The saw palmetto (*S. serrulata*, R. and S.) has a creeping, branched stem, fan-shaped, bright green, circular leaves, and ovoid oblong drupe. It occurs on the southern islands of South Carolina, and in sandy soils southward to Florida. The dwarf palmetto (*S. Adansonii*, Pursh) has a creeping rootstalk, the stem buried in the soil; glaucous, fan-shaped, slightly pinnatifid leaves; spadix longer than the leaves, erect, smooth, and slender; drupe globose, bluish black; nut hemispherical. It is found growing in low grounds from North Carolina southward to Florida. The blue palmetto belongs to the Linnæan genus *chamærops*, embracing species of low palms, with fan-like, long-petioled leaves, destitute of thread-like filaments; flowers polygamous, bracted, borne on a branching spadix, and enclosed in a 4-leaved spathe; calyx 8-cleft; corolla 8-petalled, yellowish; stamens 8 to 9, with the filaments connate at base; anthers oblong; ovaries 8, more or less united; stigmas acute, stigmated on the inner face; drupes with 1 to 8 seeds, embryo dorsal, in horny, somewhat ruminated albumen. This species grows in shady woods in the lower districts from South Carolina to Florida; it was first noticed by Fraser, and called by him *C. hystrix;* its stem is short, proliferous, leaves circular in outline with numerous 2 to 4-toothed divisions on 8-angled rough-edged petioles; sheaths at base persistent, composed of oblique fibres interwoven with numerous, erect, strong spines; it is remarkable for these thorns like porcupine quills, which grow from the root intermingled with the leaves, and which suggest the specific name. —The value of the palms to man can hardly be computed, as their various products enter so largely into the supply of his wants and even of his luxuries. The products of this tribe, says Humboldt, are wine, oil, wax, flour, sugar, salt; and Martius adds to the list thread, utensils, weapons, food, and habitations. Many of the useful purposes served by the cocoanut tree are noticed under that head, to which all others might be added. Other species are alike remarkable and of similar value, many yielding spirituous liquors, known as palm wine and the like; others affording different kinds of sago from the pith of the older stems. The gomutie palm (*gomutus saccharifer*, Rumphius), of the Indian archipelago, has hard timber suitable for buildings; its leafstalks afford strong black fibres, resembling horsehair, for stitching together thatch or for making brooms; the midribs of the leaves are employed in making pins, and those fine arrows which the natives blow from long tubes; from the sap is made sugar or strong drink, and from the pith sago of good quality. A gum resin is obtained from *hyphæna Thebaica*, once extensively used as a diuretic and diaphoretic; the indispensable luxury of the Asiatics is the betel nut, the fruit of another species; the kernels of the fruit of the *attalea*, rubbed in water, form a useful emulsion for internal and external use; and the juice of the fruit of the same *schisophyllus* is employed in slight ophthalmic attacks. The fruit-bearing species, which need no more than a reference here, are eminently valuable, furnishing food to entire tribes of men; and those of other species, which have acrid properties, are yet capable of being made salutary by means that neutralize their peculiar dangerous principle. The palm oil used in the manufacture of soap and candles is a very considerable article of trade; and wax is abundantly secreted from the trunks and leaves of South American palms, of which the carnauba of Brazil throws it off in scales from its foliage. The resin called dragon's blood has been alluded to, and in the roots of the palmetto has been found tannin in considerable quantity. —The best idea of the palms can be gathered from Blume's *Rumphia* (folio, Amsterdam, 1835–'46); Royle's "Illustrations of the Botany of the Himalayas," &c. (fol., London, 1839); Martius's *Genera et Species Palmarum* (3 vols.

fol., Munich, 1823-'45); and from the various writings of Endlicher, Jussieu, Roxburgh, Schleiden, Griffith, and others. See also Elliott's "Sketches of the Botany of South Carolina and Georgia" (2 vols. 8vo., Charleston, 1821-'4); Chapman's "Flora of the Southern United States," &c.

PALM OIL, a fatty oil of the consistence of butter, of a rich orange color, sweetish taste, and odor like that of violets or orris root. It is the product of the fleshy integument or drupe of the stony fruit of the palm known as the *elæis Guineensis* of W. Africa. The same oil is also obtained in Brazil, Cayenne, and the West Indies, and is probably yielded by other species of palm beside that named. To obtain it, the negroes remove the fibrous drupe, which having bruised they cover with boiling water. Upon this the oil rises and is skimmed from the surface. It retains the coloring matter of the drupe, which is removed in the subsequent treatment of the oil in the English factories, either by bleaching in shallow vats on the surface of hot water or by various chemical methods of treatment. Palm oil is imported into England from Africa to the amount of about 85,000 tons annually, about 20,000 tons coming from a single port of W. Africa. Each drupe affording only about 1/16 of an ounce of oil, and each tree only 3 or 4 lbs. of it, an immense amount of labor must be expended in securing this product, and the forests of palm must be of great extent. A large part of the importation is consumed in the factories of Messrs. Price and co. (see CANDLE), in the manufacture of candles, and great quantities also go into the production of soap. Palm oil melts in a very thin fluid at temperatures varying from 75° to 95° F.; the older it is the greater the heat required to melt it. By age and exposure it becomes rancid and whitish. In ether it is perfectly soluble, slightly so in cold alcohol, and in boiling alcohol dissolves readily, but separates on cooling. It consists of margarine, oleine, and a solid fat resembling stearine and called palmitine, which constitutes about ⅔ of its weight. This substance is further reduced to palmitic acid and oxide of glycerine. The change takes place in saponification; and as these ingredients also exist uncombined in palm oil, this is in better condition than any other oil for the process of soap making. In the manufacture of candles, the oil, having been melted by steam pipes introduced into the casks, and freed from impurities, is mixed with ¼ to ⅓ of its weight of sulphuric acid, and is briskly agitated for about 2 hours in copper boilers heated by steam to about 350°. The glycerine and sulphuric acid by their mutual reaction are thus decomposed and escape partially in carbonic and sulphurous acids, and the remainder by subsequent washing. The impure acids are next distilled in copper stills heated by steam injected at a temperature of 600°. The dark residue in the retorts is made by pressure to yield further portions of oil at the close of the distillation, and the black solid mass which remains is used for fuel. The distilled fat, when cooled to 50° or 54°, is broken into cakes 18 inches square and about 1¼ thick, which are distributed upon squares of coir or cocoanut matting, and these being piled upon each other are submitted to the action of a powerful hydraulic press at a temperature of 75°. The fat thus obtained may be run at once into candles for the European markets; but for tropical climates it is again submitted to pressure at a temperature of 120°. The soaps made with palm oil retain the natural agreeable odor of the oil.—In Africa palm oil is eaten to some extent by the natives as a sort of butter. In medicine it is recognized as an emollient, and employed sometimes in friction or embrocation, though possessing no specific virtue over other oleaginous substances.

PALM SUNDAY. See HOLY WEEK.

PALMA, the capital of the island of Majorca, in the Mediterranean; lat. 39° 34′ N., long. 2° 45′ E.; pop. 40,000. It is situated at the head of the bay of Palmas, and presents a picturesque appearance, as it is built on the slope of a hill with the large cathedral towering over the houses and fortifications. It is surrounded by a wall 36 feet thick, with 18 bastions and 8 gates. In some places the projecting eaves of the houses almost make a roof over the street. The cathedral is a handsome Gothic building. There are numerous churches, convents, and charitable institutions, and a public library of 40,000 volumes. Wool and silk are manufactured.

PALMA, JACOPO, the elder, an Italian painter, born in Serinalta, near Bergamo, about the close of the 15th century, died, according to Vasari, at the age of 48. He was educated in the school of Venice. His pictures are to be found in the principal private and public galleries of Europe, and are highly esteemed for tasteful composition and expression.—JACOPO, the younger, grand nephew of the preceding, born in Venice about 1544, died in 1628. His talents having attracted the notice of the duke of Urbino, he was sent by him to Rome, where, during a residence of 8 years, he studied the antique and the works of Michel Angelo, Raphael, and Caravaggio. Returning to Venice at the age of 24, he found the public favor and employment engrossed by Tintoretto and Paul Veronese; but he was able to rank next to them, and after their death he was without a rival in Venice. Examples of his best style are the "Plague of the Serpents," in the church of S. Bartolommeo, and the "Assumption of the Virgin" in the Ospitaletto. In the latter part of his life he painted so rapidly and carelessly that his pictures were little more than sketches. Lanzi calls him the last painter of the good and the first painter of the bad epoch of the Venetian school. He executed some etchings in a masterly style.

PALMAROLI, PIETRO, an Italian painter and picture restorer, born in the latter half of the 18th century, died in Rome in 1828. He was the first to transfer frescoes from walls to canvas, and to his skill in the execution of this difficult process is due the preservation of Daniele da Volterra's famous "Descent from the Cross," in the church of Trinita de' Monti, now (Feb. 1861) in the gallery of the French academy. This was accomplished in 1811, and the interest which it excited among lovers of art caused similar means to be taken to save other works threatened with decay. As a restorer he brought to light innumerable beauties in obscured paintings. Prominent among these were Raphael's *Madonna di San Sisto* in the gallery at Dresden, and the fresco of the "Sibyls," by the same master, in the church of Santa Maria della Pace in Rome, the latter of which he was obliged to free from the restorations in oil made by the order of Pope Alexander VII.

PALMBLAD, Vilhelm Fredrik, a Swedish author, born at Liljested, Dec. 16, 1788, died Sept. 2, 1852. In 1806 he visited the university of Upsal, where he became a member of the society of the friends of belles-lettres, from which sprang the "Aurora Union." In 1810 he bought the academic printing office, and began the publication of the *Fosfor*, in 1812 the *Poetisk Kalender*, and in 1813 the *Svensk Literaturtidende*, all of which periodicals had much influence in the development of Swedish literature. In 1830 he was made vice-president and subsequently president of the Swedish literary society, and in 1835 professor of Greek literature in the university of Upsal, and became editor of the biographical lexicon of distinguished Swedes. He wrote, beside other works, *Supplementa in Lexica Græca* (1822); a "Handbook of Geography" (1824); *Dagens Händelser* ("Events of the Day," 1839); and several novels, of which *Amala*, *Familjen Falkensvärd* (2 vols., Oerebro, 1844-'5), and *Aurora Königsmark*, are the most deserving of mention. One of his most important works was the uncompleted "Handbook of Physical and Political Geography" (5 vols., Upsal, 1826-'37).

PALMEGIANI, Marco, an Italian painter, born in Forli in the latter part of the 15th century, died subsequent to 1537. He was a disciple of Francesco Melozzo, and one of the ablest artists of his country at the period in which he lived. He had two styles, the first ascetic and formal, the second bold and pleasing with landscape or architectural backgrounds. He excelled in Madonnas. One of his best pictures, representing the dead Christ between Nicodemus and Joseph, is in the Palazzo Vicentini at Vicenza. Kugler says there are several clever pictures of his in the Berlin museum.

PALMELLA, Dom Pedro de Souza-Holstein, duke of, a Portuguese statesman, born in Turin in 1786, died in Lisbon, Oct. 12, 1850. He was first brought to notice at Bayonne in 1808, when, in the presence of the emperor Napoleon, he maintained the claims of Portugal to national independence. In 1814 he was sent by King John VI. as plenipotentiary to the congress of Vienna, and afterward went to Brazil, where he held the post of minister of finance. Returning to Europe in 1818 on a diplomatic mission, he was president of the regency of Portugal on the outbreak of the revolution of 1820, tried to reconcile the royal and the liberal interests, held the premiership and the ministry of finance in the cabinet formed on the overthrow of the revolutionary constitution in 1823, and presided over a junta charged with devising a new one. On the first attempt of Dom Miguel to usurp power, he was arrested, April 30, 1824. Released by King John, he resumed *ad interim* the ministries of finance and the interior, till in 1825 he was appointed ambassador to England. On the death of John VI. in 1826, he adhered to Dom Pedro; and when in 1827 Dom Miguel was invested with the regency of Portugal, he at once resigned his post. The regent's usurpation of royalty, April 25, 1828, caused him to engage in active proceedings to restore Dona Maria, for which the usurper sentenced him to death for high treason. On the ensuing visit of Dona Maria to Europe in 1828, he was appointed president of the regency of Terceira, and in concert with Villaflor upheld the young queen's cause with great energy and skill. When Dom Pedro assumed the regency in the name of his daughter in 1832, Palmella received the premiership with the department of foreign affairs, and a few months later went again to England as ambassador. Here he succeeded in raising money and enlisting troops on behalf of Dona Maria, returned to Oporto, where Dom Pedro was besieged, accompanied the naval expedition under Capt. Napier to Algarve, and entered Lisbon with Villaflor, July 24, 1833. After the death of Dom Pedro, in Sept. 1834, the young queen Dona Maria made him her prime minister, which post he resigned a few months later in favor of Saldanha, retaining the ministry of foreign affairs. The insurrection of Sept. 9, 1836, again drove him into exile, but he was soon permitted to return. He played a subordinate part in the political intrigues that followed and ended in the triumph of Costa-Cabral; after the fall of that minister, he again received the department of finance, under the premiership of Saldanha, and held it for a little over a year.

PALMER, Erastus Dow, an American sculptor, born in Pompey, Onondaga co., N. Y., April 2, 1817. He was brought up to the trade of a carpenter and joiner, and followed that occupation in Utica until the age of 29. Shortly before this period, incited by the sight of a cameo portrait, and by a constructive talent which already exhibited itself in ingenious carvings on wood, he attempted with a piece of shell and a file to execute a similar head of his wife. Although entirely ignorant of the process, he wrought patiently at this work in the intervals of his daily toils, and exhibited it when completed to a gentleman of the neighborhood, of considerable taste and knowledge of art, who encouraged him to persevere in this new occupation. For several years he occupied himself chiefly with cameo cutting, gaining gradually so much in facility of execution and reputation that he was invited to take up his residence in Albany. The injurious effect of this occupation upon his eyesight, as well as a conviction that so limited a sphere of labor did not afford sufficient scope for his talent, led him at about the age of 35 to attempt sculpture, to which he thenceforth devoted himself exclusively. His first work in marble, an ideal bust of the infant Ceres, modelled from one of his own children and idealized with a strict regard to nature as a basis, was exhibited at the New York academy of design, where it attracted much attention. It was followed by two bass-reliefs representing the morning and evening star, in which, as in the previous work, the careful finish acquired from working on cameos was a marked feature. A more important work than either of these was a statue of life size, representing an Indian girl contemplating a crucifix which she holds in her hand, and intended by the sculptor to typify the birth of Christianity in a savage mind. He has also executed in marble statues of the "Sleeping Peri," the "Little Peasant," and the "White Captive." The last, his most elaborate work, is a nude figure of a girl, bound to a tree, and having a mingled expression of despair, shame, and terror. All of these are conceived on ideal principles peculiar to the artist, and having little relation to the antique, which he never studied, and are distinguished by careful workmanship. His largest work in which the full figure is introduced is a design of the "Landing of the Pilgrims," embodying 15 statues, and intended for the capitol at Washington. Among his many works in bass-relief are "Faith," "Immutability," "The Spirit's Flight," "Sappho," and "Remorse;" and of his ideal busts the principal are "Resignation," "Spring," and the "Infant Flora." He has also made portrait busts of Erastus Corning, Commodore Matthew C. Perry, Governor E. D. Morgan, and many others. Since his adoption of the profession of sculptor he has produced upward of 100 works in marble, and now pursues his calling at Albany. He is the only American sculptor of note who has never studied or practised his art abroad. His conceptions are his own, and his knowledge of his art and technical skill have been acquired wholly in New York.

PALMER, JOHN, an English dissenting clergyman and author, born in Southwark in 1729, died June 26, 1790. He was the son of an undertaker, and in 1759 became pastor of a dissenting congregation in London, with which he remained connected until 1780, when, having previously married a lady of fortune, he retired from the ministry, and devoted himself to literary pursuits. In the latter part of his life he abandoned the doctrines of Calvin for those of Socinus, and is said to have become an avowed opponent of all tests of faith. His principal works are: "Observations in defence of the Liberty of Man as a Moral Agent," in reply to Dr. Priestley's "Illustrations of Philosophical Necessity" (8vo., London, 1779); an appendix to that production, and a "Letter to Priestley" on the same subject; a "Summary View of Christian Baptism," &c.

PALMER, JOHN, the first projector of mail coaches, born in Bath, England, about 1750, died in 1818. He was brought up as a brewer, but subsequently became the manager of a theatre in his native town. While travelling in this capacity from place to place for the purpose of securing performers for his company, he conceived the idea of conveying the mails by coaches with guards, on account of the greater security and expedition thereby attainable. After some opposition, he succeeded in making manifest the utility of his plan, and was appointed comptroller-general of the post office, a position which he lost in 1792, although he was subsequently reimbursed by parliament.

PALMERSTON, HENRY JOHN TEMPLE, 3d viscount, a British statesman, born at Broadlands, near Romsey, Hampshire, Oct. 20, 1784. He is descended from a younger branch of the Temples of Stowe, the founder of which was secretary to Sir Philip Sidney, and settled in Ireland in 1609. The celebrated Sir William Temple was his grandson, and uncle to the first Lord Palmerston, who was created a peer of Ireland, March 12, 1722, under the title of Baron Temple and Viscount Palmerston. The present viscount commenced his education at Harrow, went thence to the university of Edinburgh, where he studied mental philosophy under Dugald Stewart, and was finally graduated M.A. at St. John's college, Cambridge, in 1806. Deprived by the act of union of his seat as a hereditary legislator in the Irish parliament, Lord Palmerston, who succeeded to his title at the age of 18, had the alternative of taking his chance of election as an Irish representative peer in the house of lords, or of seeking admission into the house of commons. He chose the latter, and in 1806, when little more than 21 years of age, contested the representation of Cambridge university with Lord Henry Petty, the present marquis of Lansdowne. He was unsuccessful in this instance, but was almost immediately returned for the proprietary borough of Bletchingley, and in 1807 was made a junior lord of the admiralty in the tory cabinet of the duke of Portland. Between 1807 and 1811 he sat for the borough of Newport, isle of Wight, and in the latter year he succeeded in securing the representation of Cambridge university, which from the outset had been an object of ambition with him, and which he retained for the next 20 years. His first important speech in parliament was delivered in opposition to a motion for the production of papers explanatory of the British expedition to Copenhagen in 1807, on which occasion he objected "to making public the working of diplomacy, because it is the tendency of disclosures in that department to shut up future sources of information"—a principle in diplomacy on which he has since consistently acted. In 1809 he succeeded Lord Castlereagh as secretary at war in the Perceval cabinet, an office which he filled uninterruptedly in 5 different administrations during a period of 19 years. The accession of Canning to the foreign secretaryship in 1822 inaugurated a more liberal policy in the relations of England with the constitutional governments of the continent, and in that policy Lord Palmerston readily concurred, attaching himself thenceforth to the fortunes of the Canning party and its leader, and adopting at the same time the views of the latter on the subject of Catholic emancipation, parliamentary reform, and other domestic questions. He was nevertheless continued in office in the Wellington cabinet, which came into power on the death of Canning, but retired with the other members of his party when Mr. Huskisson was compelled by the hostility of the premier to resign. In 1828 he found himself for the first time in 21 years in opposition to the government, and in March of the succeeding year, and again in 1830 in a speech on the neutrality observed by the administration in the contest between Dom Miguel and the Portuguese liberals, he ably advocated the propriety of a more active and open sympathy with friendly nations engaged in a struggle for constitutional liberty. He now definitively severed himself from the tories, a step which brought upon him a large degree of ridicule and abuse from the journals of that party, and upon the accession of the whigs to power in Nov. 1830, was appointed by Earl Grey foreign secretary. He advocated Lord John Russell's reform bill, and thereby lost his seat for Cambridge university, but was in 1831 returned for Bletchingley. From 1832 to 1834 he represented South Hants, and since 1835 he has been regularly returned to parliament by the electors of Tiverton. He was prominent in effecting the recognition of the independence of Belgium, and in the formation of the quadruple alliance between England, France, Spain, and Portugal for upholding the cause of constitutional government in the two latter countries. During the brief administration of Sir Robert Peel, from Dec. 1834, to April, 1835, he remained out of office; but upon the formation of the Melbourne ministry he was restored to the foreign secretaryship, the functions of which he discharged until Sept. 1841. His reputation as a foreign minister was greatly extended during this second term of office, and over all parts of the continent his name "became synonymous with English diplomatic activity." His most noted achievement was the quadruple alliance with the northern powers to preserve the integrity of the Turkish empire. During the second Peel administration he remained in opposition, attacking the administration of foreign affairs by Lord Aberdeen with considerable severity, particularly the settlement of the boundary line between the state of Maine and the province of New Brunswick, which he stigmatized as the "Ashburton capitulation." In 1846 he returned to the foreign office in the Russell cabinet, and in the various difficult questions of public policy which the revolutionary movements of 1848–'9 evolved exhibited his favorite policy of lending the moral weight of England's opinion to struggling nationalities, but at the same time refusing any practical assistance. Of the usurpation of extreme power by Louis Napoleon in Dec. 1851, he took a more friendly view than was at that time at all palatable to the English court. This disfavor was heightened by his subsequent refusal to permit his despatches to ministers at foreign courts to be submitted to the revision or inspection of Prince Albert, which led to his dismissal from office by Lord John Russell, at the instigation of the court. Public opinion ran high in his favor on account of what was deemed this manly and English-like assertion of independence, and he succeeded in a few months in overthrowing the ministry by which he had been discarded. For a time it was thought that with his customary pliability he would have taken the lead of the tory party, but a year later he entered the coalition ministry of Lord Aberdeen as home secretary, which position he held until Feb. 1855, when he was called upon to form the ministry by which the Russian war was brought to a close. In 1857 he despatched an army to suppress the mutiny in India, and at the same time set on foot the series of military operations in China which led to the important treaty ratified in 1860. His government was overthrown in Feb. 1858, for introducing the "conspiracy to murder bill" shortly after the attempt of Orsini on the life of the emperor. In June of the succeeding year he again formed a ministry which is still in power, and in which he occupies the position of first lord of the treasury. Although previously committed in favor of maintaining the integrity of the Austrian empire as a necessity in the European system, he advocated non-intervention in the Italian struggle of 1859, on the ground that in its relations with the Lombardo-Venetian provinces the imperial government had exceeded its legitimate authority. The overthrow of the Bourbon dynasty in Sicily and Naples in 1860 in like manner received his sympathy, but no direct assistance from the British government.—The long career of Lord Palmerston, extending through a period of 55 years, during more than 45 of which he has held office, is due not less to his industry and talent for statesmanship, than to his shrewdness and skill as a parliamentary leader, to his appreciation of the English character, and to his merits as a public speaker. His oratory possesses the rare quality of adaptability which renders him so effective on the hustings as on the floor of the house of commons, and is impregnated with a light and good-humored sarcasm, seldom exerted without effect upon unwary opponents. For clear and forcible statement, without [illegible] less verbiage, his speeches are unsurpassed by those of contemporary statesmen; and although he seldom rises to eloquence, he is never in any sense heavy. His appearance, notwithstanding his advanced age, is comparatively youthful, and his personal habits are those of great physical activity and much outdoor exercise. He is tall and erect in his carriage, walking usually with vigorous strides, and carrying his years in every respect most gallantly. His face is round, and his now scanty hair is a mixture of brown and gray. He devotes a considerable care to the embellishment of his person, and his clothes are in the extreme of the fashion of some 20 years since, fitting tight to his person. Unlike Canning, Disraeli, Russell, Gladstone, and others of his contemporaries, he has won his way to power without the aid of literary prestige. His views and opinions are to be found in detail only in parliamentary reports and blue books, and in his occasional addresses to the electors of Tiverton; but multitudes of dissertations on his foreign policy have been published both in England and on the continent, among which may be mentioned the publications and speeches of David Urquhart accusing him of being secretly and treacherously in the service of Russia, and of having betrayed the interests of England in the eastern question, and Count Ficquelmont's *Lord Palmerston, l'Angleterre et le continent* (1852). More elaborate works on the same subject are: "Opinions and Policy of the Right Hon. Viscount Palmerston as Minister, Diplomatist, and Statesman, with a Memoir, by G. H. Francis" (8vo., 1852), made up chiefly of extracts from his speeches; and "Thirty Years of Foreign Policy, a History of the Secretaryships of the Earl of Aberdeen and Lord Palmerston" (8vo., 1855). Lord Palmerston married, Dec. 16, 1839, the dowager countess Cowper, daughter of the first Viscount Melbourne; but the union being without issue, his title will expire with him.

PALMETTO. See PALM.

PALMYRA, an ancient city situated in a fruitful and well watered oasis in the Syrian desert, in lat. 34° 18′ N., long. 38° 18′ E., about 120 m. N. E. from Damascus. It was founded, or according to Josephus enlarged by Solomon, and its Hebrew name of Tadmor signifies, like its Greek and Latin one, the "city of palm trees." Situated nearly half-way between the Orontes and the Euphrates, it must early have been a commercial station of considerable importance to the carrying trade between the coast and the interior of Asia. Yet after the statement that Solomon "built Tadmor in the wilderness," it is not mentioned again in Scripture, nor is it spoken of by Xenophon nor in the accounts of the conquests of Alexander. In Roman history the first notice we have of it is by Appian, who states that Mark Antony marched to surprise and plunder it, but was disappointed by the inhabitants removing their goods beyond the Euphrates. Pliny refers to it as a city of merchants, an emporium of the traffic between the Parthians and the Romans, and as having managed to preserve its independence although lying midway between these dangerous and often quarrelsome neighbors. In the reign of Hadrian it formed an alliance with Rome, and received many marks of favor from that emperor. It however did not attain to its highest dignity until the reign of Gallienus. Odenathus, a native of Palmyra, avenged the defeat and captivity of the emperor Valerian by driving back Sapor and the Persian army over the Euphrates. For this act he was honored by Gallienus with the title of Augustus, and recognized as his colleague in the empire. Odenathus, after a short but vigorous reign of 8 years, was assassinated by his nephew Mæonius. But his wife, Zenobia, immediately took charge of the government, put to death the murderer of her husband, extended her sway over Mesopotamia and Syria, and assumed the title of queen of the East. During her reign of 5 years Palmyra reached its highest prosperity. As she refused to acknowledge the supremacy of Rome, and encroached upon Bithynia, Aurelian marched against her, defeated her forces in two pitched battles at Antioch and at Emesa, and finally beleaguered Palmyra itself (A. D. 273). After an unavailing defence, Zenobia fled to the Euphrates, but was captured by the Roman light horse. The emperor treated the conquered city with much consideration, although putting to death some of the advisers of the queen, one of whom was Longinus. He had just crossed the Hellespont on his return home, when news reached him of an insurrection, in which his garrison of 600 archers had been slaughtered. Turning back, he rapidly hastened to Palmyra, and massacred indiscriminately the inhabitants. From the effects of this blow Palmyra never recovered; it gradually sank into an obscure village, although it was garrisoned by Diocletian, and fortified by Justinian. It was taken by the Moslems under Abubekr, and again in 1400 by Tamerlane. After this it is not mentioned again in history, and for a long time even its site was unknown. Finally the accounts given by the Arabs of the magnificence of its ruins aroused so much curiosity, that an expedition under the auspices of the Levant company started from Aleppo in 1678 to explore, but were obliged to return without effecting their object. The enterprise was again undertaken in 1691, and this time was successful, and an account of the expedition was published in the "Transactions of the Royal Society." In 1751 it was visited by Wood and Dawkins, who published a description of their discoveries, illustrated with magnificent engravings.—The appearance of Palmyra across the desert is very striking, the countless columns of white marble, extending between one and two miles, strongly contrasting with the dead level of the sand. The principal ruin is the temple of the sun, which is remarkable for its grandeur. This stands in the centre of a court about 700 feet square, and surrounded by a wall 70 feet high. On the W. side of this wall was the entrance, consisting of 3 gateways, of which the central door was 32 feet high and 16 wide. Upon its sides and lintels were monoliths, with garlands of fruits and flowers sculptured upon them, and which, though shattered, still remain. Around the inside of the wall were two rows of colonnades, of the columns constituting which 100 still exist. Around the shrine was a row of fluted Corinthian columns, although the other columns surrounding the temple are of the Ionic order. About 300 yards from the N. W. angle of the court of the temple, the great colonnade begins. There were at first 4 rows of columns, and when full they must have numbered 1,500, of which 150 are still standing, while numerous others are lying prostrate. Their height, including base and capital, is 57 feet. The tombs of Palmyra are very peculiar, and form perhaps the most interesting of its monuments. They are buildings like towers, 2, 3, or 4 stories high, each story constituting a chamber, which is divided so as to form separate compartments for the dead. In these fragments of mummy linen have been discovered, much the same as are found in Egypt. Tombs like these are only found in the Hauran, and they would seem to be of a date preceding the Roman conquest, most of them containing inscriptions in the Palmyrene character and language, a branch of the Syriac. The principal portion of the ruins, however, appear to indicate that the city was chiefly embellished from the reign of Hadrian to the conquest of Aurelian. The columns, with the exception of those of the temple of the sun, are in the Corinthian style, which was at that time the prevailing order. Palmyra is now inhabited by a small tribe of Bedouin Arabs, whose tents are pitched in the court of the temple. Among the travellers who have visited the ruins, Irby and Mangles, Cassas, Bankes, and Lord Lindsay may be named. For the history and antiquities, consult Wood, "Ruins of Palmyra" (London, 1793); Gibbon, "Decline and Fall of the Roman Empire," chap. xi.

PALO ALTO, a N. W. co. of Iowa, drained by the Des Moines river and its tributaries; area, about 600 sq. m.; pop. in 1859, 131. The productions in 1859 were 2,507 bushels of Indian corn and 2,965 of potatoes.

PALO ALTO ("tall timber"), the Spanish designation of a wood in S. Texas, about 8 m. N. E. from Matamoras, on the Rio Grande, famous for a battle fought near it on May 8, 1846, between about 6,000 Mexicans under Gen. Arista, and 2,300 soldiers of the U. S. army under Gen. Zachary Taylor. While Gen. Taylor was at Fort Brown, opposite Matamoras, he received intelligence that the Mexican general had crossed the Rio Grande above with a large force, and threatened Point Isabel, where the U. S. army had a depot of provisions. He therefore marched on May 1 to the relief of this place, which he reached before Arista; and having put it in a fit condition for defence, he started upon his return on the 7th. On the 8th about noon he discovered the enemy in front of him, and in a position to intercept his return to Fort Brown. After a short halt for refreshment he formed his line in two wings. Col. Twiggs commanded the right, which comprised the 5th and 3d regiments of infantry, Ringgold's light artillery, 2 18-pounders, and 2 squadrons of dragoons. The left was under the command of Lieut. Col. Belknap, and consisted of 2 batteries of light artillery and the 8th infantry. At 2 P. M. the army advanced, and the Mexicans opened upon it a heavy fire of artillery, and charged the left with lances; but they were steadily forced back. the prairie grass was set on fire, and under cover of the smoke the Americans advanced. After an action of 5 hours, the Mexicans abandoned their position, and the Americans encamped for the night upon the field. The American loss was only 4 men killed, and 3 officers and 37 men wounded; the Mexicans had about 100 killed.

PALOMINO Y VELASCO, ACISLO ANTONIO, a Spanish painter and author, born in Bujalance in 1653, died in Madrid, Aug. 13, 1726. He studied theology and philosophy at the university of Cordova, but devoted himself to painting, receiving his first instructions in the art from Valdes Leal and Juan de Alfaro. In 1678 he repaired to Madrid, was appointed painter to the king, and soon ranked as one of the most eminent artists of Spain. Among his chief productions are the frescoes in the church of San Juan del Mercado in Valencia, and in Salamanca and Granada, illustrating scriptural allegory or church history and legends, and a fine series of altarpieces in the cathedral of Cordova. After the death of his wife in 1725 he took orders. He published a work on Spanish art under the title of *El museo pictorico* (Madrid, 1715–'24).

PALSY. See PARALYSIS.

PALUDAN-MÜLLER, FREDERIK, a Danish poet, born in Kjerteminde in the island of Fünen, Feb. 7, 1809. He early attracted attention by the publication of some romances and poems. His reputation, however, was founded upon the poem entitled "The Dancer" (1833), written in the manner of Lord Byron, which became at once exceedingly popular. His greatest work, *Adam Homo* (Copenhagen, 1841–'9), a didactic humorous poem, is regarded as one of the most remarkable productions of modern Danish literature. As an author he has been exceedingly prolific. Under the title of "Earlier Poems" (*Ungdomsarbeider*) he republished in 1847, in one volume, three of his first productions, "Cupid at Court," "The Dancer," and "Cupid and Psyche."—CASPAR PETER, a Danish historian, elder brother of the preceding, born in Kjerteminde, Jan. 25, 1805. In 1843 he became head of the cathedral school at Odense, and the same year member of the Copenhagen academy of sciences. He has written several historical works and disquisitions, mostly relating to the northern nations.

PAMLICO RIVER, an estuary receiving the waters of Tar river and Tranter's creek, and opening into Pamlico sound, N. C. It is from 1 to 8 m. broad and 40 m. long, and navigable for all vessels which can enter the sound.

PAMLICO SOUND, a shallow body of water on the coast of North Carolina, separated from the Atlantic by long and narrow sandy islands, whose outermost point is Cape Hatteras; breadth from 10 to 30 m., length about 80 m. The principal entrance is by Ocracoke inlet on the S. W. It communicates with Albemarle and Currituck sounds on the N., and receives Pamlico and Neuse rivers on the W.

PAMPAS, a name applied to some of the vast plains of South America, particularly those stretching from Terra del Fuego N. through Patagonia and part of La Plata, over 27° of latitude, with an area of about 1,620,000 sq. m. They are traversed by numerous rivers, and the soil is in general poor, but in low places well covered with grass. There are patches here and there of algarobias and acacias. They are inhabited by ostriches and herds of guanacos; and the Spaniards introduced horned cattle and horses, which, running wild, have increased in immense numbers. Herds have been seen containing upward of 15,000.

PAMPELUNA (Sp. *Pamplona;* anc. *Pompeiopolis*), a fortified city of Spain, capital of the province of Navarre, on the left bank of the river Arga, 197 m. N. N. E. from Madrid; pop. in 1848, 15,715. It is enclosed upon 3 sides by the Pyrénées; has several churches, one of which is dedicated to Ignatius Loyola, who was wounded here during a siege by the French in 1521, and conceived on his sick bed the idea of founding the order of Jesuits. Water is brought by an aqueduct nearly 12 m. long, carried through tunnels for about 3 m., and at one place over 97 arches, 35 feet in span and 65 feet high.—Pampeluna was founded by Pompey the Great, and captured by the Goths in 466, and by the Franks in 542. Charlemagne destroyed the fortifications in 778, and they were not rebuilt till the 11th century. Early in the 15th century Charles III. of Navarre made great alterations and improvements in the defences. The French took the place by stratagem in 1808, and held it till it was captured by the duke of Wellington after the battle of Vittoria in 1813.

PAMPHILUS, a Greek painter, born in Amphipolis, flourished between 390 and 350 B. C. Not above 4 or 5 of his pictures are specified by ancient authors, notwithstanding Quintilian states that he was one of the most renowned among the Greeks for composition. He was the master of Apelles, Melanthius, and other celebrated painters.

PAMPHILUS, an early Christian writer, born probably in Berytus, suffered martyrdom in Cæsarea, Feb. 16, 309. Descended from an influential and wealthy family, he studied in his native city, and under Pierius at Alexandria. Subsequently he became a presbyter of Cæsarea in Palestine, at which place he passed most of his life. About the close of 307, during the persecution of the Christians by Diocletian, he was imprisoned by the governor of Palestine, because he refused to sacrifice to the gods, and remained in confinement until Feb. 309, when he was put to death. Pamphilus was the most intimate friend of Eusebius, who attended upon him during his imprisonment, and assumed the surname of Pamphili. With Eusebius also he probably wrote 5 books of "The Apology for Origen." At Cæsarea he formed a public library, consisting chiefly of ecclesiastical works, which became very celebrated in the Christian world. He also founded a theological school, designed chiefly to instruct the students in the exposition of the Scriptures. In conjunction with Eusebius he prepared an edition of the Septuagint, which became the one commonly used in the eastern church. Another work, entitled *Expositio Capitum Actuum Apostolicorum*, has been ascribed to Pamphilus, but it is doubtful whether it was written by him or by Euthalius. The life of Pamphilus was written by Eusebius in 3 books, but these are all lost, with the exception of a few fragments, which are also doubtful; but events in his history have been collected from the other works of Eusebius, from Jerome, Photius, and others.

PAMPHYLIA (Gr. *παν*, all, and *φυλον*, tribe —composed of many tribes or races), a district of ancient Asia Minor, comprised in the modern Turkish provinces of Anatolia and Adana. It is said to have been first called Mopsopia from Mopsus, a leader of one of those bands of Greeks who after the Trojan war were dispersed and settled at different places on the Asiatic coast. The later name was applied in reference to the mixed character of its inhabitants, among whom, in addition to the Greeks, were many aboriginal tribes from the interior. Pamphylia was upon the southern coast, and was bounded E. by Cilicia, N. by Pisidia, from which it was divided by Mt. Taurus, and W. by Lycia. It was a narrow strip about 90 m. in length, and formed an arch around a gulf of the Mediterranean called from it the Pamphylian gulf (now gulf of Adalia). The eastern extremity is flat and sandy, the western hilly with the ramifications of Mt. Taurus that run quite down to the coast. The western part of this district is at present a mass of incrusted vegetable matter, beneath which its various rivers, the ancient Catarrhactes, Cestrus, Eurymedon, and Melas, find their way to the sea. The waters of these subterranean streams rise to the surface of the sea in some places at the distance of ¼ m. from the shore.—Pamphylia was a province of ancient Persia, and in the war of Xerxes against the Greeks furnished 30 ships. When the Persian empire was destroyed by Alexander, Pamphylia became subject to Macedon and then to Syria. It subsequently became a part of the kingdom of Pergamus, and finally a Roman province. The principal towns of Pamphylia were Olbia, Corycus, Aspendus, Perge, Syllium, Side, Cibyra, and Ptolemais; they were the chief depots at which the spoils of the coast pirates were sold. The language spoken was a mixture of Greek and native barbarous dialects.

PAN, in Grecian mythology, the god of flocks and shepherds. He was the son of Mercury by Callisto, Dryops, Œneis, or Penelope, or according to some authorities of Penelope by Ulysses or by all her suitors in common. He is represented with horns, a pug nose, and a goat's beard, feet, and tail, and was perfectly developed from his birth. When his mother first saw him she ran away in fright, but Mercury carried him to Olympus. He was called Pan (Gr. πᾶν, all) from his being a favorite with all the gods. He was especially the companion of Bacchus, with whom he went to India. He delighted in noise and riot, and so frightful was his voice that, designing to help Phidippides against the Persians, he scared away the barbarians by a scream, whence originated the expression "panic fear." He also terrified the Titans in their war with the gods. He dwelt in grottos, and wandered among the mountains and valleys, leading the dances of the nymphs, playing upon the syrinx or shepherd's flute, of which he was the inventor, and sometimes engaging in the chase. He was the patron of hunters, but was dreaded by travellers. He was the god not only of pastoral life but also of bee-keepers and fishermen, and according to Servius was considered as the god of nature generally, or a personification of the universe. The poet Pindar won his regard by his lyric songs. He loved the nymph Echo, by whom or by Pitho he became the father of Iynx, the nymph Pitys, who was metamorphosed into a fir tree, and Syrinx, after whom he named his flute. His worship, native in Arcadia, extended thence over other parts of Greece, and after the battle of Marathon was introduced into Athens. In Rome he was honored under the names of Inuus and Faunus. The fir tree was sacred to him, and sacrifices were offered to him consisting of cows, rams, lambs, milk, and honey. His attendants were the satyrs.

PANÆNUS, a Greek painter, who flourished in Athens about 448 B. C. He was a nephew of the sculptor Phidias, whom he assisted in making the statue of the Olympian Jupiter. A series of pictures by him at that place, illustrating mythological legends, is mentioned by Strabo, by which, according to Böttinger, we are to understand the paintings on the sides of the elevated base of the statue of Jupiter, described by Pausanias. His principal work was the battle of Marathon in the Pœcile at Athens, in which separate periods of the battle were represented, such as the first onset, the rout of the Persians, and the final contest at the ships, with portraits of Miltiades, Callimachus, Datis, Artaphernes, the mythical heroes Theseus and Marathon, the goddess Minerva, and Hercules. This was one of the earliest pictures in which events were intelligently depicted, and the costumes and accessories were represented with some regard to truth and propriety. He occasionally engaged in the contest for prizes in painting at the Isthmian and Pythian games.

PANAMA, a city of New Granada, and the capital of the state of Panama, situated on the S. coast, on a bay of the same name, in lat. 8° 56′ N., long. 79° 31′ 2″ W.; pop. about 10,000. The harbor is well protected, but so shallow that vessels of more than 80 tons cannot come within 2 m. of the shore. The usual anchorage for large vessels is 3 m. distant, near the island of Perico. The city has a fine cathedral, several convents, and a college, all of which are now in a decayed condition, and carries on some trade with Europe in pearls, shells, gold dust, &c. It owes its importance chiefly to the Panama railroad, of which it is the Pacific terminus. The old city of Panama, where the seat of the Spanish colonial government was established in 1518, was situated 6 m. N. E. of the present city. It was destroyed by the bucaneers in 1670, and is now a heap of ruins.

PANAMA, Isthmus of, the narrowest point of the American continent, connecting North with South America. Formerly the name embraced the whole region between Tehuantepec and Darien; now it is confined to the strip of land lying between the E. frontier of Costa Rica and the district of Darien or Atrato, and embracing the different interoceanic routes which lie between Chiriqui and Golfo Dulce, Chagres and the bay of Panama, and the bay of Caledonia and the gulf of San Miguel. These limits are also those of the state of Panama, one of the 8 states composing the republic of New Granada. It is embraced between lat. 7° 20′ and 9° 60′ N., and long. 77° and 83° W. A line drawn from the head waters of the river Doraces or Dorces, falling into the Atlantic, to Punta Burica on the Pacific, separates the state from Costa Rica on the W., while on the S. E. it is bounded by the state of Cauca. In its widest part the distance from sea to sea is about 114 m.; in the narrowest, following the line of the railway from Navy bay to Panama, 47½ m. The area of the state is 28,734 sq. m.; pop. in 1851, 138,875; in 1861, estimated at 175,000, exclusive of 8,000 independent Indians occupying the district bordering on the state of Cauca. It is divided into 6 departments, viz.: Panama, Chiriqui, Fabrega, Herrera, Santo, and Colon.—The isthmus is traversed by a range of mountains, which joins the chain of Baudo near the gulf of San Miguel. Their highest peak is that of Picacho, 7,200 feet high, in the department of Chiriqui. The union of these two ranges and the prolongation of the second form the barrier between the Pacific and the valley of the Atrato, with an elevation of from 700 to 1,200 feet. Not fewer than 148 streams flow into the Atlantic from the dividing ridges of the isthmus, and 326 into the Pacific.

The largest is the river Tuira, falling into the gulf of San Miguel; it is 162 m. long, and is navigable for 102 m. Among other tributaries it receives the Cana, near the source of which are the celebrated gold mines of Cana. The river Chagres is navigable for 60 m. The coasts of Panama are fringed with beautiful islands, the most remarkable of which are those of Las Perlas in the Pacific, so named from their pearl fisheries, and Coiba or Quibo, area 180 sq. m., also in the Pacific. The best ports of the isthmus are, on the Atlantic, Bahia del Almirante or Chiriqui lagoon, San Blas, Caledonia, Colon, and Portobello; on the Pacific, the bay of San Miguel, Golfito in Golfo Dulce, and, in the archipelago of Montijo, the port of Damas in the island of Coiba.—In the E. districts of the state are various routes, more or less explored, which are supposed to offer facilities for an interoceanic canal. Cullen, Gisborne, Strain, Prevost, and Codazzi have examined at various times the line between Caledonia bay and the gulf of San Miguel, but have failed to obtain a satisfactory result. Various explorations of the country between the valley of the Atrato and the Pacific have also been made, with the same object. The best known are those conducted by Messrs. Trautwine, Porter, and Lane, and by Mr. Kennish, under the direction of Mr. F. M. Kelley of New York. A later exploration has been made by Lieuts. Craven and Michler, under the authority of the United States.—Some gold is now obtained in the rivers Marea, Balsas, Coclé, Belen, Indios, Santa Maria, Virigua, &c., and in the ravine of San Juan. The principal mines worked are those of San Antonio in Coclé, and that of Veraguas, but their joint product does not exceed $150,000 annually. That great quantities of gold were anciently obtained is evident from the fact that the isthmus was called Castilla de Oro, and also from the abundance of the metal obtained from the *huacas* of Chiriqui. The districts of Santiago and Calobre abound in mines of salt, copper, iron, gypsum, lime, and coal. Coal mines are numerous in Boca del Toro and near Golfo Dulce, as are also those of iron in the mountains of San Cristobal. There are various thermal springs, and sea salt and tortoise shell are products of importance.—In the interior and on the flanks of the mountains the climate is relatively cool and salubrious. Much has been said of the mortality of Panama. Dr. Buell pronounces the miasmatic fever of the isthmus to be "a mild form of febrile disease, perfectly controllable by quinine;" and adds that its climate is comparatively healthy. The seasons are divided into the wet and the dry, the former lasting for 8 months of the year, from May to December inclusive; August, September, and October are the hottest months. At the beginning of January the temperature is very agreeable, and the nights are then almost cold.—Nearly all the vegetable products of the torrid zone may be raised on the isthmus in abundance; but the people devote themselves rather to commerce than agriculture, which is only pursued to the extent of supplying the transit with maize, rice, plantains, &c. The indigo plant grows spontaneously; and the experiments that have been made with coffee, tobacco, cacao, and other plants, have been very successful. Cotton is indigenous and perennial, and samples sent to Europe have been pronounced excellent. Cocoanut oil is produced abundantly, at little cost, and with small capital. Manufacturing industry is limited to the production of cloth and grass hammocks, coarse linen, grass (Panama) hats and knapsacks, pack saddles, matting, tiles, small boats, sails, soap, and a few other articles. Various dyeing materials, precious woods, wood for ship building, and valuable drugs are found, and Codazzi enumerates 55 varieties of fruit trees common to the isthmus.—The whole Atlantic coast of the isthmus, where Columbus found thousands of Indians, is now a solitary waste, the only inhabited localities being San Blas, Portobello, Manzanillo, Chagres, and Bocas del Toro. The Indians of the isthmus originally numbered not far from 300,000. They made a firm resistance to the invaders, especially at Darien and Veraguas; but they were rapidly extirpated, and even the establishments of their conquerors have almost entirely disappeared. Columbus in his last voyage, in 1502, discovered Chiriqui lagoon, called by his followers Bahia del Almirante, and established a colony at Belen, which however was soon abandoned. In 1508 Ojeda and Nicuesa visited the coasts of the Caribbean sea, and Nicuesa in 1510 founded Nombre de Dios and Portobello. In the same year Ojeda founded San Sebastian de Uraba, on the E. shore of the gulf of Darien, which however was soon abandoned. Enciso nevertheless built another town on the opposite shore of the gulf, which he called Santa Maria la Antigua, and which came ultimately to be the capital of the district. In 1513 Balboa discovered the Pacific. In 1514 reports of the immense riches of Castilla de Oro created great excitement in Spain, and led to the organization of an expedition of 1,500 men, under Pedro Arias Davila, for its exploration. The jealousy of Pedro Arias led to the execution of Balboa. The town of Nata was founded in 1517; in 1518, disgusted with Darien, Pedro Arias transferred the seat of government to Panama. In 1535 the conquest of Peru and the fame of the opulent empire of the incas attracted thither vast numbers of Spaniards, by way of the isthmus. It has been calculated that between 30,000 and 40,000 perished in the transit. In 1586 Drake sacked Portobello; the buccaneers under Morgan took it in 1665, and in 1670 reduced the castle of San Lorenzo at Chagres, and captured and burned Panama itself, for which reason its site was changed to the present one, 6 m. to the S. W. In 1680 they crossed the isthmus on the line of the river Chucunaque, under Sharp, Ringrose, and Dampier, and took the city of

Santa Maria; this led to the closing of the mines of Cana in 1685, by royal decree. In 1698 William Paterson undertook the establishment of a Scotch colony at Puerto Escoces, on Caledonia bay. In 1719 the Catholic missionaries had succeeded in establishing a number of towns on the Atlantic coast and on the rivers flowing into the gulf of San Miguel, but they were all destroyed by the Indians. In 1790 a treaty of peace was made with the Indians of Darien, in compliance with which the Spaniards abandoned all their forts in that district, in which no white man has since settled.—The government of Colombia, and its successor that of New Granada, has always observed a liberal policy in respect to the isthmus of Panama, making all needful concessions for interoceanic communication across it, and now (1861) all its chief ports are free. The last charter granted for this purpose, and the only one which has taken effect, was conceded in 1847 to a French company, represented by one Mathieu Klein, for a railway; but failing to be carried out by him, it was transferred by Gen. Herran, minister of New Granada in the United States, to an American company composed of Messrs. Aspinwall, Chauncey, and Stephens, by whose efforts the existing railway was built. Since 1528 the idea has been mooted of opening a canal between the rivers Chagres and Grande, falling into the Pacific near Panama, or the Trinidad and Caimito. The route was examined by two Flemish engineers under the orders of Philip II.; but finding insuperable difficulties, and for political reasons, the king ordered that no one should revive the subject, or make any propositions concerning it, under penalty of death. In 1826 Domingo Lopez, a native of New Granada, explored and traced a new line for a canal, 14 leagues in length, between Panama and Portobello. The first formal exploration, however, was that made in 1827 under the orders of Gen. Bolivar, by the engineers Lloyd and Falmark. Their labors, concluded in 1829, produced no result beyond that of satisfying the world that a railway, if not a canal, could readily be built between Chagres and Panama. In 1843, in consequence of the representations of Humboldt and M. Alphonse Morel, the French government sent out Messrs. Garella and Courtines to make examinations. Garella reported in favor of a canal to pass under the dividing ridge of Ahogayegua by a tunnel 120 feet high and 17,890 feet long. In 1852 the government conceded to Dr. Cullen and others the privilege of building a canal between Caledonia and San Miguel. In 1855 it made a similar concession to Joseph Gooding and Ricardo Vanegas, for a canal in Choco, between the parallels of 4° and 8° N. The result of all the investigations made on the isthmus below Panama has been the general conviction that an interoceanic canal is feasible at several points, the sole question being that of cost. The Panama railway was located by Col. Hughes, and executed by Col. Totten as chief engineer. The work was commenced in 1850, with a force of 5,000 men; and on Jan. 30, 1855, the first train passed from sea to sea. The estimated cost was $5,000,000, but the high price of labor, due to the California excitement, and the necessity of obtaining all supplies from the United States, augmented the cost to $7,500,000. The average annual income of the road since completion has been $1,800,000, expenses $850,000. The number of men employed in repairing and working the road is between 700 and 800. Up to 1858 the average number of passengers over the road was 31,000 annually; the average amount of treasure $55,000,000, and of freight 66,000 tons. The finest work on the road is the iron bridge over the river Chagres, which is 630 feet long, and cost $500,000. The only advantages which the government of New Granada has reserved from the railway are 3 per cent. of its net revenues, and $10,000 annually as a compensation for the free transit of all foreign mails, against which however are to be calculated the numerous and heavy expenses incurred by the government to maintain order and give security to the traffic. The ports of the isthmus having been declared free for the benefit of the world-wide use of the transit, the revenue has been considerably diminished, and further curtailed by the refusal of the U. S. government to pay port dues levied by the laws of the country on all vessels entering its ports. By the treaty of 1846 between the United States and New Granada the two governments entered into a qualified alliance regarding the isthmus, in which the United States undertook "to guarantee positively and efficaciously to New Granada the perfect neutrality of the isthmus, with the view that the free transit from one to the other sea may not be embarrassed or interrupted, in any future time while the treaty exists; and in consequence, the United States also guarantee, in the same manner, the rights of sovereignty and property which New Granada has and possesses over the said territory."

PANATHENÆA, the most splendid of the Athenian festivals, celebrated in honor of Athena (Minerva) Polias, the protectress of the city. According to the common story, it was instituted by Erichthonius under the title of Athenæa; and this name it retained until the reign of Theseus, who united all the Attic tribes into one body, and this, becoming their common festival, was called Panathenæa. The festival was divided into two kinds, the lesser and the greater. The former was the one originally instituted, and took place every year; the latter, the origin of which has been ascribed to Pisistratus, occurred in the 3d year of each Olympiad. The difference between the two festivals was but slight, consisting in the greater solemnity of the latter, and in the peculiarity of a magnificent procession in which the peplus of Minerva was carried to her temple. The exercises of the festival were various.

There were 3 different kinds of combat, viz.: foot, horse, and chariot races; gymnastic exercises; and musical and poetic contests, at which rhapsodists recited the poems of Homer and other epic poets. The last, however, were introduced gradually, contests in singing and playing on the flute and cithara not having been known until the time of Pericles. The sacrifices were very costly, for every town in Attica and every colony of Athens was obliged to send a bull for the celebration. The festival probably lasted at first only one day, but the time was gradually extended, so that finally it seems to have continued for nearly 12 days. The chief attraction of the great Panathenæa was the procession, in which nearly all the inhabitants of Attica would appear to have taken part. The peplus of Minerva carried to her temple on this occasion was a crocus-colored garment in which were woven the victorious acts of the goddess. Phidias and his disciples represented this procession in the frieze of the Parthenon.

PANAY. See Philippine Islands.

PANCKOUCKE. I. André Joseph, a French author and publisher, born in Lille in 1700, died there, July 17, 1753. He was the author of several works, mostly compilations of no great value. On account of the free-thinking opinions expressed by him in a treatise entitled *Usage de la raison* (Lillé, 1753), the clergy refused to grant him Christian burial. II. Charles Joseph, son of the preceding, born in Lille, Nov. 26, 1736, died in Paris, Dec. 19, 1798. He early became known by several treatises on mathematics, and at the age of 28 established himself as a bookseller in Paris, where he acquired an immense fortune, and where his house became a place of resort for the most distinguished men of letters in the capital. The *Mercure de France* was published by him. He also established the *Moniteur*, and was the editor of several important works, among which were the *Œuvres de Buffon*, a *Dictionnaire universel de jurisprudence* (27 vols. 4to.), and *Grand vocabulaire Français* (30 vols. 4to.). He was also the publisher of several translations, and formed the plan of the *Encyclopédie méthodique*. (See Cyclopædia, vol. vi. p. 182.) III. Charles Louis Fleury, son of the preceding, born in Paris, Dec. 23, 1780, died at Fleury-sous-Meudon, July 11, 1844. Continuing the occupation of his father, he published several valuable works, translated the *Agricola* and the *Germania* of Tacitus, and wrote a "Description of the Isle of Staffa and its Basaltic Grotto" (1831). He left some translations in manuscript, including a French version of the "Darkness" of Lord Byron.

PANCREAS, a single, non-symmetrical glandular organ, situated in man transversely across the upper part of the abdomen, about on the level of the last dorsal vertebra; it is behind the peritoneum, at the posterior part of the epigastric region, on the spine and great vessels, between the 3 portions of the duodenum, behind the stomach, and on the right of the spleen. It is of an irregular, elongated form, flattened from before backward, the left extremity very thin and prolonged to and sometimes beneath the spleen; the right extremity is rounded, resting against the 2d portion of the duodenum; the color is grayish white; the length is about 7 inches, width 1¼, and thickness 1 inch, and the weight 4 to 5 ounces; it is rather smaller in woman. The duct is in the interior, going from left to right, receiving in its course the excretory canal which comes from the larger end, or little pancreas as it is sometimes called; it opens into the duodenum, at the lower part of the 2d curve, by a special orifice, or one common to it and the bile duct; its arteries come principally from the splenic branch of the cœliac axis, and its nerves from the solar plexus. It closely resembles in structure the salivary glands, like the parotid; it is made up of clusters of secreting follicles forming the ends of the finely branching divisions of the duct; each cluster, with its vessels, nerves, and connecting areolar tissue, forms a lobule, and the several lobules are held together by the ducts, vessels, and areolar tissue; its development begins by a budding forth of cells from the intestinal canal. The secretion resembles saliva, being clear, colorless, somewhat viscid, with alkaline reaction, and slightly heavier than water; it contains from 18¼ parts of solid matters (in the ass) to nearly 100 in 1,000 (in the dog), of which the albuminous ferment is not perfectly coagulated by heat, though precipitated by alcohol, mineral acids, and metallic salts; it undergoes decomposition in a few hours; it possesses the power of converting starch into sugar, and with the intestinal secretion is concerned in the digestion of farinaceous food in the small intestines. (See Chyle, and Digestion.) From the experiments of Bernard it seems established that an essential purpose of the pancreatic fluid is to reduce fatty matters to the state of an emulsion, and thereby promote their absorption by the lacteals; the oil, being reduced by a simple physical process to the minutest particles, each covered by a coating of albumen, is absorbed without decomposition, and passes unchanged into the tissues; this function is rendered the more probable by the relation between disease of the pancreas and the discharge of fatty matters from the intestines. The amount daily secreted by man, according to Bidder and Schmidt, is 5 to 7 ounces; the secretion is intermittent, and regulated by the digestive process, being most abundant at the commencement of digestion; the natural stimulus is the digestive process, and the consequent greater supply of blood through the sympathetic nervous connections. The organ is liable to hypertrophy, atrophy, softening, induration, inflammation extending from neighboring organs, simple and malignant tumors, fatty degeneration, and calculous growths. That the pancreas performs some essential function is evident from its existence in all vertebrates, whether carnivorous or herbivorous, and from its presenting a constant relation to the duodenum, whatever be the proportions of the alimentary canal or the form of the organ; it is even found in a rudimentary condition in the invertebrates, and as low as the worms (*rotatoria*); also in the annelids proper, the gasteropod and cephalopod mollusks, and in many insects; it exists here as cæcal appendages with thick walls, lined with ciliated epithelium, and opening into the beginning of the intestine. The pyloric cæcal appendages of most osseous fishes have generally been regarded by anatomists as the analogue of a pancreas; they become more and more numerous and complex, from the simple ones in the turbot to the 60 in the salmon with a secreting surface of more than 32 feet; in the sturgeon they become united into a glandular organ. In some orders these cæca are absent, as in the sharks and rays, pike, and eel, in which the pancreas has the ordinary glandular form; some authors deny the pancreatic nature of these cæca, and maintain that they secrete a fluid only accessory to the true pancreatic secretion. In reptiles the pancreas is always present, often large, and in the higher orders more or less in contact with the spleen. In birds it is larger than in any other class, and it probably performs also the office of salivary glands, which are here wanting; it communicates with the intestinal canal by 2 or 3 openings; as a general rule the pancreatic secretion is poured in before the bile, though the ducts are so near together that no physiological conclusions can be drawn as to their separate actions; the greatest separation is probably in the ostrich, in which the bile duct opens close to the pylorus and the pancreatic duct 3 feet lower down; it is generally whitish red, large, elongated, and usually with 2 lobes. In mammals it differs from that of man chiefly in color and in its more or less division into lobes; in rodents, and especially in the rat, it is spread out in an arborescent manner; in the rabbit the duct enters the intestine from 9 to 18 inches from the pylorus, affording special facilities for studying its secretion. It is often called sweetbread in the calf, but this term more properly belongs to the thymus gland.

PANDA, a carnivorous plantigrade mammal, of the genus *ailurus* (F. Cuv.), which seems to connect the bears with the civets; by some authors it is placed with the civets. The teeth resemble those of the bears; the molars $\frac{5-5}{6-6}$, or perhaps $\frac{4-4}{5-5}$, a single unicuspidate false molar on each side above, the others tuberculate, and 2 tuberculate on each side below; the canines are nearly straight; the ears rounded and small; claws curved and semi-retractile; tail thick at the base and bushy; feet 5-toed, and the soles covered with thick fur. The only species described is the *A. fulgens* (F. Cuv.), inhabiting the snowy regions of Nepaul; it is about the size of a large cat, with full and soft fur; the color above is chestnut brown, brightest on the shoulders, with throat, belly, and legs black; head whitish, with a reddish brown spot under the eyes; tail like a lady's boa, banded with red and yellow; it is rather an elegant animal. It is found in the neighborhood of rivers and mountain streams, living much on trees, and feeding on small birds and mammals; it is called *wah* from its cry.

PANDECTS. See Civil Law.

PANDORA (Gr. πᾶν, all, and δῶρον, a gift), in Grecian legends, the first created woman. According to Hesiod, Jupiter, angry because Prometheus had stolen fire from heaven, ordered Vulcan to make a beautiful virgin, who was dressed by Minerva, adorned with fascinations by Venus and the Graces, and endowed with a deceitful mind by Mercury. She was brought to Epimetheus, who, disregarding the command of his brother not to accept from Jupiter any present whatever, received her while Prometheus was absent. When admitted among men, this "fascinating mischief" opened the casket in which all the miseries of mankind were kept, and every thing escaped except hope. Before this, according to the legend, "men had lived without disease or suffering; but now both earth and sea are full of mischiefs, while maladies of every description stalk abroad by day as well as by night, without any hope for man of relief to come." The more common version of the story makes Pandora to have brought the casket with her, and according to a later tradition the vessel contained the blessings of the gods, which she permitted to escape irrecoverably. In the Orphic poems, Pandora is ranked along with Hecate and the Erinnyes as an infernal divinity.

PANEL. See Jury.

PANGAUM. See Goa, New.

PANGOLIN, or Scaly Ant-Eater, a burrowing edentate mammal of the old world, whose species constitute the genus *manis* (Linn.). These animals have the long pointed snout, toothless mouth, and extensile tongue of the ant-eaters, and the upper parts of the body and the tail armed with scales like the armadillos; the external ears are hardly perceptible; the scales are corneous and imbricated, permitting the body to be rolled up in a ball secure from the teeth of the largest carnivora; the limbs are short and robust, the hind ones the longest; the claws curved and formed for digging; the tail long, thick at the base. The skeleton has no clavicles, the stomach is simple, and the cæcum is absent. They are found in the warm parts of Africa and Asia, living in holes which they dig in the ground or in the hollows of trees, and feeding upon insects, especially ants, which they capture on their long, round, and viscid tongue; the gait on the ground is awkward, as they walk on the outer side of the feet, with the claws turned in; they are harmless animals, though they display great strength and activity in tearing to pieces the hills of *termites* and other ants. The largest species is the short-tailed pangolin

(*M. pentadactyla*, Linn.), 3 or 4 feet long, with 5 toes, and the thick tail about as long as the head and trunk; it is found in India and Ceylon; the scales are deep brown in the adult animal, and hard enough to turn a musket ball. The *M. Javanica* (Desm.), from Java and Borneo, has a habit of climbing trees. The long-tailed pangolin (*M. tetradactyla*, Linn.), from the coast of Guinea, is 4-toed, with a flatter tail nearly twice as long as the rest of the body; the scales are large, dark-colored, with yellow margin, arranged in 11 rows on the body, and armed with 3 points at the end; under parts covered with rough brown hairs; the whole length is between 2 and 3 feet. The *M. multiscutata* (Gray), also from the Guinea coast, has 19 or 21 rows of scales, small, yellowish gray, with 3 points behind. From their external covering and shape they resemble scaly lizards more than mammals; both surfaces of the tail are covered with scales. The flesh of the pangolins, which are probably the best protected of mammals against carnivora, is delicate and much prized by the natives of Africa. The *M. Temminckii* (Smuts), a south African species, in total length about 2½ feet, is believed by the natives to have some influence upon cattle; hence, whenever one is taken, it is burned in some cattle pen, under the impression that the health and fertility of all animals afterward entering it will be increased; it is a comparatively rare animal.

PANIZZI, Antonio, librarian of the British museum, born in Brescelia, duchy of Modena, Sept. 16, 1797. He was educated at the university of Parma, which he left in 1818 and devoted himself to the practice of law. Taking part in the Piedmontese revolution of 1821, he was forced to flee, first to Lugano and afterward to Geneva and England. After a residence of a few months in London, he settled in Liverpool as a teacher of the Italian language. In 1828 he was called to the chair of Italian language and literature in the newly founded London university, which he held 2 years. In 1831 he was chosen assistant librarian of the British museum, and through his efforts and under his superintendence the library received a special parliamentary grant of £10,000 a year for its augmentation. The grand circular reading room in the centre quadrangle of the museum was suggested by him. Among the editorial labors of Panizzi are an edition of Boiardo's *Orlando innamorato* and the *Orlando furioso* of Ariosto (9 vols., London, 1830–'34); an edition of Boiardo's *Sonnetti e canzoni* (London, 1835); and an edition of Dante's *Inferno* (London, 1860).

PANJIM. See Goa, New.

PANNONIA, a province of the Roman empire, bounded N. and E. by the Danube, which separated it from Germany and Dacia, S. by the Save (Savus), separating it from Illyria, and W. by the Julian Alps and Mt. Cetius (now Kahlenberg), separating it from Italy and Noricum. It thus embraced the Trans-Danubian circle of Hungary, the whole of Slavonia, and parts of the Military Frontierland, Croatia, Carniola, Carinthia, Styria, and Austria. It was traversed by various mountain ranges, the principal of which, in the S. and W., were called Alpes Pannonicæ. Beside the Danube and Save, the province was watered by the Dravus (Drave), Murus (Mur), Colapis (Kulpa), and Arrabo (Raab), all tributaries of the Danube. The inhabitants, mostly of Illyrian race, were divided into numerous tribes, and are described as brave and warlike, but cruel and treacherous. The Romans, by whom they were conquered under Augustus, and after a revolt and desperate struggle reconquered during the same reign, not only kept strong garrisons, but also built numerous towns and fortresses in Pannonia, among others Vindobona (now Vienna), Carnuntum (near Haimburg), Arrabona (Raab), Petavio (Pettau) on the Drave, Æmona (Laybach), Segeste (Sissek) at the confluence of the Kulpa and Save, Taurunum (Belgrade), Sirmium (near Mitrovitz) on the Save, and Mursa (Eszek). A dangerous mutiny of the Pannonian legions was quelled by Drusus shortly after the death of Augustus. The province was subsequently divided into Upper and Lower Pannonia, the former being the western, and partly separated from the latter by the Arrabo. In the reign of Galerius a part of Lower Pannonia was erected into a province under the name of Valeria. All the three provinces subsequently formed part of the Illyrian division of the empire. During the last period of the western empire Pannonia was successively occupied by the Huns and the Ostrogoths, and after its fall by the Longobards and other barbarians.—The name Pannonia is frequently used for Hungary by writers of that country.

PANOFKA, Theodor, a German archæologist, born in Breslau, Feb. 25, 1801. He was educated at the gymnasium of his native city, and subsequently at Berlin, and early established his reputation among men of learning by a treatise entitled *De Rebus Samiorum* (Berlin, 1822). In 1822 he went to Rome, where a series of discourses on the tragedies of Sophocles, which he delivered before a small assembly of scholars, led to the establishment of the archæological institute. In 1824 he travelled to Sicily, returned to Rome, and thence went to Paris, where in 1827 he received from the duke de Blacas an invitation to arrange and catalogue the treasures of his museum. In 1828 he accompanied the duke to Naples, and superintended the excavations at Nola. In 1834 he returned to Germany, in 1836 became a member of the academy of sciences, and in 1844 was appointed extraordinary professor in the university of Berlin. His works are voluminous.

PANOLA. I. A N. W. co. of Miss., intersected by the Tallahatchie river; area, about 750 sq. m.; pop. in 1850, 11,444, of whom 6,420 were slaves. Its surface is generally level or rolling, and the soil fertile, especially in the low lands. The productions in 1850 were 451,909 bushels of Indian corn, 74,583 of sweet potatoes, 15,889 lbs. of rice, and 8,918 bales of cotton. There were 5 grist mills, 20 churches, and 439 pupils attending public schools. Capital, Panola. II. An E. co. of Texas, bordering on Louisiana, intersected by the Sabine river, and drained by its branches; area, 750 sq. m.; pop. in 1858, 7,122 of whom 2,414 were slaves. It has a gently rolling surface covered with extensive forests of pine, oak, walnut, ash, and hickory, and a fertile soil. The productions in 1850 were 108,870 bushels of Indian corn, 38,405 of sweet potatoes, and 887 bales of cotton. Capital, Carthage.

PANSLAVISM. See Slavi.

PANTHEISM (Gr. παν, all, and Θεος, God), that modification of religious belief, or philosophical speculation, which affirms that God is all; all being here taken as the unity, which underlies, and is expressed in, individual, multiple existences. The pantheist does not assert that every thing is God, for this were the grossest polytheism; nor even that God is every thing; nor yet that all is God, if all be understood in a collective sense, as the sum of individuals. The idea of unity (*una et unica substantia*) is essential to his system. It is monism, as claiming that there is but one substance, or spirit, in the universe, which alone has real and permanent being. It is acosmism, rather than atheism. It is virtual atheism whenever it denies that this one substance or spirit is a self-conscious intelligence. But atheism is rather the logical result of an exclusive materialism; while pantheism is the expression of an exclusive idealism. The word pantheism was first used in its present signification by Toland, in two of his works, 1705 and 1720 (the latter work was entitled *Pantheisticum, sive Formula Societatis Socraticæ*). Up to this time, pantheists were reckoned as atheists; Spinoza was charged, even by Bayle, with teaching "atheism." (See Böhmer, *De Pantheismi Nominis Origine*, &c., Halle, 1851.) Pantheism as a religious tendency is coeval with the earliest records of the race, outside of the Hebrew Scriptures. It appears, felt rather than thought, in the underlying unity of all things, in the Vedic writings; it takes the form of a fantastic imagination in the innumerable deities of the Brahminic worship, for all this host of gods was held to be but an emanation of the primeval and unchangeable *Máhán-Atmá*, or spirit of the universe. In Buddhism, it made the final object of aspiration to be the absorption of man into the one substance; through *dhyána* (contemplation) he is to attain to *nirvána*, a blissful nonentity. Zeno and the Greek Eleatics taught that there is but one real existence in the universe, all else being a phenomenal and transient modification. The stoics reduced the world to a world-soul. Many of the Neo-Platonists held to a pantheistic scheme in the background of their eclecticism. Even in the middle ages John Scotus Erigena, the enigma of his times, declares that "all which is truly said to be, is God alone;" and asks: "What could God be supposed to create, since he must be in all things, and can at the same time represent himself in no other being but himself?" Though employing some theistic phrases, he denies that any of the categories can be applied to deity. His doctrine was developed by Amalric of Bene and David of Dinante into a gross adoration of the flesh. Devout mystics, too, expressed the same tendency in the language of feeling rather than of thought. Master Eckart said that "God is nothing, and God is something;" and that "prior to the creation of the world God was not God, he was what he was." Suso, in his rapture, breaks out in the rhapsody, "that he is full of God: that there is nothing which is not God; that God and all things are one and the same." But it has been reserved for modern times to attempt the development of this system in a scientific method. Spinoza assumed its fundamental principle in his definition of substance, as the ultimate conception, and as necessarily infinite, coupled with his position that one substance could not be produced from another. Beside God, he says, no substance can be, or be conceived. (*Ethica*, prop. vi., viii., xiv.) This substance may have infinite modes; two of them we know, viz., thought and extension, *i. e.*, the spiritual and the material. His method is mathematical, starting from and applying a definition. But his definition (of substance) is an assumption rather than an axiom; and his modes are not deductions from the definition, but superinduced upon it. The revolutionary capabilities of this scheme (which brought sin and free will under the category of necessity) was not fully felt until the later German philosophy resumed the discussion, in its attempt to construct a universal system on the basis of idealism. Kant's tenacious moral convictions, his belief in right as ultimate, and sin as real, and final causes as rational, made him a thorough-going theist. But Fichte, in his earlier speculations, deduced all being from the Ego, and identified deity with the moral order of the universe. Schelling, in his youthful theorizing, reacted from this subjective idealism. Absorbed in "the intellectual intuition" of the absolute, enamored with the calm method of Spinoza, and enthusiastic to restore nature to her rights, he identified deity with the essence of the universe; declaring that this essence, in its inmost idea, was the identity of the real and the ideal, the centre of indifference between the two poles of existence (the system of absolute identity). In his maturer scheme—the philosophy of revelation—he says that his earlier writings contained only the negative part of his speculations; and he supplemented them by the fundamental position, that the transition from the one to the many, from the absolute to the relative, could only be conceived as an act of a self-conscious will. The subjective idealism of Fichte and the objective idealism of Schelling culminated in the absolute idealism of Hegel, who advocated the theory with a firmer grasp and a surer method. Being and thought, he asserts, are identical—identical in their nature and their laws. The absolute is not merely an abstract substance; it is spirit, it is subject, it is the idea. Its law of evolution is given in the principle of negation, which is real and logical both (identity of metaphysics and logic). God is this absolute spirit in this process. This spirit becomes objective to itself in nature, and returns to itself through the human spirit; God comes to self-consciousness in man. All reality is such only as it is an element in this process of deity. "The development of God in himself has the same logical necessity with the development of the universe; and the latter is so far divine as it is at every stage the development of the Divine Being." In this vast process of being, every thing is involved and included; there is a logical (real) necessity of self-development inherent in the divine idea. Sin is a negation, a perpetually vanishing factor. "The real is the rational; the rational is real." The incarnation is the generic union of divinity and humanity, found in the race as a whole. The Trinity is this universal process. Immortality is the prerogative of the absolute spirit. The absolute spirit knows itself in man; man knows the absolute, and in that absolute knows his inmost self; individual existences rise and fall, the eternal process alone abides for evermore.—Thus the historical development of pantheism shows that it was the product of religious imagination in the Orient; that it was abstract with the Greeks, and physical with the Roman stoics; was couched in the mysticism of mediæval times; became ontological in Spinoza; ethical and subjective in Fichte; objective, identifying the real and ideal, in Schelling; and attained its consummation in the dialectical processes of the Hegelian metaphysics. In some modern speculations, there have also been attempts to establish a materialistic pantheism; but a self-contradiction seems to be involved in the position that matter can be absolute or infinite.

PANTHEON (Gr. *παν*, all, and *θεος*, a god), literally, a temple dedicated to all the gods, or in which the worship of many gods was conducted. The most famous structure of this kind known to ancient or modern times is that in Rome, erected by M. Agrippa, the son-in-law of Augustus, 26 B. C., and consecrated in 608 by Boniface IV. as a Christian church, under the name of Sancta Maria ad Martyres, but which is still generally called the Pantheon. It stands in a piazza between the Corso and the Piazza Navona, near the centre of the ancient Campus Martius, and after the lapse of nearly 19 centuries is the best preserved of the monuments of ancient Rome. Pliny ranked it among the wonders of the ancient world. In shape it is a rotunda, 148 feet in diameter, surmounted by a dome, the grandest in existence, and of which the summit is 148 feet above the pavement. In the centre of the dome is a circular opening 28 feet in diameter by which the building is lighted. (See DOME.) The most remarkable feature of the Pantheon, however, is its Corinthian portico, 110 feet in length by 44 in depth, composed of 16 granite columns, with marble capitals and bases, disposed in a triple row, each column being 46½ feet high and 5 feet in diameter. These columns support a pediment, the bronze roof of which was removed by the emperor Constantius II. and Pope Urban VIII. Forsyth pronounces this portico "more than faultless; it is positively the most sublime result that was ever produced by so little architecture" ("Remarks on Antiquities, Arts, &c., in Italy," London, 1818); and Fergusson, while alluding to the incongruity of attaching a portico to a rotunda, says the former is "perhaps the most satisfactory example of its class" ("Handbook of Architecture"), an opinion in which most authors who have described the building coincide. Other features of the Pantheon, such as the bronze doors, the niches and *ædiculæ*, the marble cornice and the mosaic pavement of the interior, are in excellent preservation, and give an adequate idea of the original splendor of the edifice. An inscription on the frieze of the portico shows that it was erected by Agrippa in his 3d consulate, while another below records repairs by the emperors Septimius Severus and Caracalla. The solidity of its construction and its early conversion into a Christian church doubtless account for its excellent preservation at the present day. Some architects have imagined that it was originally intended and used as a bath; but passages in Pliny and other ancient authors, in which it is styled a *templum* and is mentioned as the receptacle of the images of many gods, sufficiently refute this notion. It contains the tombs of Raphael, Annibale Carracci, and other celebrated painters.

PANTHER (*felis pardus*, Linn.), a large African spotted cat, considered by Temminck and most modern naturalists as a variety of the leopard (*F. leopardus*, Linn., or *L. varius*, Gray), but regarded by Cuvier, Hamilton Smith, and others, as a true species. Skins of all the spotted cats vary so much, even the two sides of the same animal being unlike, that it is difficult to pronounce on the identity or non-identity of these two animals; travellers and furriers consider them the same, and naturalists have been too ready to follow their opinion. The description of the panther by Linnæus is factitious, and does not apply to any species of the genus; others of the older naturalists confound this animal with the jaguar (*F. onca*) of South America, sometimes called the American panther. Cuvier gives them as separate, this animal being the *pardalis* of the Greeks and the *panthera* of the Romans, and says if any leopard was by them confounded with it, it was the cheetah or hunting leopard (*F. jubata*). If not distinct species, the panther and leopard are very marked varieties; the former is a more powerful animal, darker colored, with the crowded markings arranged with considerable regularity, and the tail longer in proportion; H. Smith describes one as 5¼ feet long without the tail, and 2¾ feet high at the shoulder; of a buff yellow color, approaching to ochrey on the back and sides, and with no white anywhere; with 7 vertical rows of imperfect dark rings on the sides, each formed by an assemblage of 5 or 6 simple spots, darkest within the rings, descending even to the knees; the tail spotted to the end, and a narrow black bar across the lower part of the throat; in the leopard the ranges are more numerous and the spots smaller. This is probably the animal so abundantly supplied to the public spectacles of ancient Rome, hundreds having been exhibited together. The panther is less common than the leopard, and confined chiefly, if not entirely, to Africa; it prefers thick coverts, and feeds on the smaller mammals like deer, antelopes, sheep, monkeys, and wild and domesticated fowls; it is an expert climber and very active; it is readily tamed; the female is gravid 9 weeks, and the young are born blind. The panther of South America is the jaguar, and of North America the cougar. (See LEOPARD.)

PANTICAPÆUM. See KERTCH.

PANTOGRAPH (Gr. παν, all, and γραφω, to write), an instrument designed for copying maps and plans, either upon the same scale as the original, or one larger or smaller. It consists of 4 rods jointed together, forming a rhombic figure, which is set upon casters, so as to be moved freely over the paper upon which it is placed. One point in the plane of the instrument being made the centre of motion, a tracer is clamped at another point, which is to be guided by the hand over the lines that are to be copied. This is done by a pencil fixed upon one of the rods at any desired point for the scale required, so that as the tracer is moved in any direction the pencil shall make similar movements. An exact description of the instrument requires reference to figures. Another form of the instrument, invented by Prof. Wallace of Edinburgh, and called by him the eidograph (Gr. ειδος, image), is far superior to the old form of the pantograph in the precision and beauty of its application. In practice its action is so correct that the outline of a figure can be reduced by means of it to an almost microscopic minuteness with an accuracy which defies the most critical examination to detect an error. For a description of the instrument, see "Library of Useful Knowledge," "Practical Geometry," by Thomas Bradley, p. 59.—The pantograph was first described by Christopher Scheiner in a tract entitled *Pantographia, seu Ars Delineandi*, &c. (Rome, 1631). In the great exhibition of 1851 was an improved instrument of M. Gavard, by which tracings of maps were made upon a greatly reduced scale with extreme delicacy. A map of France was thus produced, showing the departments within two inches square. If desired, figures can be copied by the pantograph in reverse.

PANTOMIME (Gr. παν, all, and μιμος, to imitate), originally an actor who expressed by gestures, movements, and attitudes every variety of action and character; and hence in modern times a theatrical performance in which the action is represented by gesticulation, without the use of words. Pantomimic entertainments were common among the ancient Greeks and Romans, and by the latter were brought to great perfection about the time of Augustus, to whom or to the great artists who flourished in his reign their invention has sometimes been ascribed. The Roman pantomime, in his dress and manner of acting, very closely resembled the modern ballet dancer, regulating his movements by the accompaniment of musical instruments, especially of the flute, and making use of nearly every part of his body, except his face, which was covered by a mask, to express the action of the piece. So popular did the art become in the time of Augustus that his successor, Tiberius, was constrained to discountenance it by imperial decrees. Caligula and Nero, however, patronized the pantomimes, the latter frequently acting as one; and thenceforth to the latest period of the empire their performances enjoyed a high degree of favor. Mythological love stories, frequently of a lewd character, were favorite subjects in these entertainments, and occasionally a scene from a Greek drama, or the drama itself, was selected, each representation being based upon a text, called the *canticum*, which was sung by a chorus in the background. Women were at first prohibited from publicly performing as pantomimes, but subsequently they acted as such, not scrupling on occasions to appear naked, and the effect of such spectacles, in connection with the indecent subjects represented, is animadverted upon with severity by Juvenal in his satires. The early Christian writers also denounced pantomimic performances as the school of vice and licentiousness. In Sicily pantomimic dances were called *ballismi*, whence perhaps the modern words ball and ballet. The term pantomime is now commonly applied to a performance of a humorous character, not necessarily including dancing, in which feats of strength, agility, legerdemain, &c., are represented, and the action is conducted in dumb show by certain fantastic and conventional personages of Italian origin, entitled Harlequin, Columbine, Pantaloon, &c., with the ordinary stage accessories. In the London theatres the Christmas pantomimes are a favorite annual amusement of a burlesque character, produced with splendid scenery and dresses, in which the action is carried on by dancing, gesticulation, and dialogue.

PAOLI, PASQUALE, a Corsican patriot, born at or near Morosaglia in 1726, died in London, Feb. 5, 1807. In his early youth he witnessed the struggles of his countrymen, under his father Giacinto, against the Genoese and the French, followed his exiled parent to Naples in 1739, and was there educated. After completing his studies, he obtained an acquaintance with military tactics by serving as an officer in one of the Corsican regiments which the king of Naples had formed of refugees from that island. In 1755 his father sent him to Corsica, in company with his brother Clemente, who had become a Franciscan friar; and both eagerly engaged in the contest which their countrymen were now waging against the Genoese. The best Corsican generals had been carried away, and although scarcely 29 years old and entirely unknown to fame, Pasquale aspired to the first rank. His self-confidence and eloquence, aided by his brother's intrigues, won the day; he was unanimously chosen for the annual magistracy, and in a *consulta*, held July 16, was offered the supreme command of the troops. He modestly insisted upon sharing it with the old Mario Matra, with whom however he soon quarrelled; but Matra was killed in 1757, leaving him without a rival. He immediately summoned a *consulta*, procured from this body the confirmation of his rank as general for life, and, pursuing the war against the Genoese with renewed ardor, beat them back from the interior of the island, hemmed them in within a few seaports, defeated their army under Grimaldi, and organized a navy that seriously interfered with their trade. Having at last for a while freed his country of intestine and foreign war, he turned his attention to civil affairs, and improved the system of government and the administration of justice by the establishment of permanent courts, introducing uniformity of weights and measures, regulating the coinage, encouraging agriculture, manufactures, and commerce, and promoting the diffusion of knowledge by instituting a national printing press, and opening a university at Corte. He invited J. J. Rousseau to Corsica, requesting him to frame a constitution for the new republic, in conformity with the principles expounded in his *Contrat social*, but this project was not carried into execution. In 1765 he was visited by Boswell, whose journal, published in 1768, contributed much to his European reputation. The Genoese had not yet given up the hope of reconquering the island; in 1767 they entered into a contract with France to garrison the seaports for 4 years in acquittance of a debt to the republic; but their plans were baffled by Paoli, who not only repelled them, but captured the island of Capraja. Being disheartened, they sold their right to the French, and another and more terrible conflict commenced. At first Paoli succeeded in checking the advance of the invaders under Marbeuf and Chauvelin, and he even routed them at San Nicolao and at Borgo, forcing them to seek refuge within the walls of Bastia. But in 1769 an army of 22,000 men, under Count de Vaux, landed in the island, and soon completely subdued it. Paoli left his country in despair and sailed for Leghorn, whence he went to Holland, and finally to England. There he received a pension of £1,200, and lived for 20 years. The constituent assembly of France having allowed the Corsican exiles to return home, Paoli repaired to Paris, and, being introduced to the king by Lafayette, was promoted to the rank of lieutenant-general, receiving at the same time the military governorship of Corsica. When the island was formed into a department, he held the presidency of the administration, and was elected commander of the national guard. But the lawless and sanguinary proceedings of the convention soon estranged and shocked him; and, instigated by Great Britain, he organized a new rebellion, and was elected in June, 1793, generalissimo and president of a *consulta* which met at Corte. The French garrisons were driven from the island; English troops were landed there, and George III. was proclaimed "king of Corsica." Paoli, however, was disappointed in the treatment which he received from the English, and the viceroyalty which he had a right to expect was given to Sir Gilbert Eliot. When, two years later (Oct. 1796), the island was retaken by an expedition sent from Leghorn by order of Bonaparte, the exiled patriot removed to England, and passed the rest of his life in obscurity near London. By his will he bequeathed a large part of his fortune to establish schools in Corsica.—Clemente, a Corsican patriot, elder brother of the preceding, born in Rostino in 1715, died there in 1793. He was a prominent leader in the Corsican war of independence against the Genoese and French. After the battle of Ponte Nuovo he retired to a convent near Vallombrosa, and there remained 20 years. When an old man he went back to Corsica, but died soon afterward.

PAOLO, Fra, or Paolo Sarpi. See Sarpi.

PAOLO GIOVIO. See Giovio.

PÁPA, a town of S. W. Hungary, in the county of Veszprém, 26 m. N. W. from the town of that name, from which it is separated by the principal range of the Bakony; pop. 16,000, chiefly Magyars. It is situated on a small affluent of the river Marczal, and contains a castle belonging to the family of the Esterházys, several churches, synagogues, convents, and hospitals, and various important institutions of learning. The neighboring country produces wine. The principal manufactures of the town are cloth, paper, and stone ware.

PAPA VERONESE. See Cagliari.

PAPACY. See Pope.

PAPAL STATES, or States of the Church (It. *Stati Pontifici*, or *Stati della Chiesa*), an independent state of central Italy, subject to the pope. Within the last year it has been reduced by the transfer of large portions of territory to Sardinia, but in the present unsettled condition of Italian affairs it will be convenient to treat of it as it existed in 1859. In this point of view it extends from lat. 41° 15′ to 45° N., and from long. 10° 50′ to 13° 55′ E., and is bounded N. by Venetia, E. by the Adriatic, S. and S. E. by Naples, S. W. by the Mediterranean, and W. and N. W. by Tuscany and Modena. Beside the compact territory thus described, it includes the delegation of Benevento, which is surrounded by the Neapolitan province of Principato Ulteriore, and the territory of Pontecorvo, enclosed by the Neapolitan province of Terra di Lavoro. Its greatest length is 280 m. from the mouth of the Po to Monte Circello, and its greatest breadth, from Ancona to Civita Vecchia, 140 m. For administrative purposes it is divided into a comarca including Rome and the Agro Romano, which is governed by a cardinal styled president; 6 legations, generally placed under a cardinal legate; and 13 delegations governed by inferior prelates. These, with their area and population in 1853, are as follows:

Divisions.	Area in sq. m.	Population.
Roma e Comarca	1,699	326,509
Legations.		
Bologna	1,430	375,631
Ferrara	893	244,524
Forli	683	218,433
Ravenna	674	175,994
Urbino e Pesaro	1,858	257,751
Velletri	629	62,013
Delegations.		
Ancona	424	176,519
Macerata	861	243,104
Camerino	311	42,991
Fermo	317	110,321
Ascoli	460	91,916
Perugia	1,447	234,563
Spoleto	1,130	184,989
Rieti	513	73,683
Viterbo	1,068	128,324
Orvieto	301	29,047
Frosinone	720	154,559
Civita Vecchia	378	20,701
Benevento	58	23,176
Total	15,289	3,124,668

The legations of Bologna, Ferrara, Forli, and Ravenna constitute the district known as the Romagna; Spoleto and Perugia are commonly called by the ancient name of Umbria; and the delegations of Ancona, Macerata, Fermo, and Ascoli are known as the Marches. The word march (It. *marca*) is an old term denoting a frontier territory governed generally by a marquis, and these 4 delegations formerly constituted the march of Ancona, the S. part of which (Fermo and Ascoli) was afterward erected into a separate march under the name of Fermo. The principal cities and towns are Rome, the capital, Bologna, Ancona, Ferrara, Ravenna, Sinigaglia, Faenza, Iesi, Perugia, Benevento, Pesaro, Macerata, Rimini, Fano, Forli, and Fermo.—The coast line of the Papal States, comprising about 160 m. on the Mediterranean and 210 on the Adriatic, is in nearly all places low and often marshy. On the Mediterranean side the only coast town N. of the Tiber is Civita Vecchia, the port of Rome. About the mouth of the Tiber the land is not easily distinguishable from the sea, and the approach is rendered still more dangerous by the prevalence of thick fogs. S. of the Tiber the seaboard presents the same dull flat aspect until a projecting headland, under which two large moles run out into the sea, marks the site of Porto d'Anzio, the ancient Antium, which in the time of Nero was a great seaport, but is now accessible only by small vessels. A plan has been adopted by the present pope for restoring the harbor and connecting it by railway with Rome. The vicinity is covered with interesting ruins. The vast malarious Pontine marshes begin here and extend to Monte Circello (anc. Promontorium Circæum), an isolated perpendicular mass of limestone. Terracina is 10 m. further S., on the Neapolitan frontier. Its harbor, once of considerable repute, became choked up, but was reconstructed by Pope Pius VI. On the Adriatic side the shore northward from the river Tronto, which marks the boundary with Naples, is low and sandy, but diversified with several small villages, as far as the promontories of Monte Ciriaco and Monte Comero, between which lies Ancona, the best Italian port on the Adriatic. The coast here rises somewhat, but there is no good anchorage from Ancona to Rimini, a distance of [illegible] m. About 12 m. further N. is the fishing town of Cesenatico, where a new harbor has lately been built; and beyond that is the mouth of the river Montone, on which, 5 m. from the sea, stands the decayed commercial city of Ravenna. The remainder of the coast is mostly a vast marsh, and about the delta of the Po, the N. branch of which forms the Venetian frontier, extensive dikes are built.—The most striking natural feature of the Papal States is the central ridge of the Apennines, which, after forming the boundary between Bologna and Tuscany, runs parallel with the coast, in a N. N. W. and S. S. E. direction, separating Umbria and the Marches from the Campagna di Roma. On both sides it sends off numerous ramifications. Those on the E. extend in parallel ridges toward the Adriatic, a distance of [illegible] or 40 m., enclosing fine valleys through which flow numerous short and rapid streams. Those on the W. reach in a few places as far as the sea, but the descent on this side is much less regular than on the other. The country around Perugia, near the point where the Apennines enter the Papal States from Tuscany, is a beautiful hilly region scarcely surpassed by any part of Italy. A broad and fertile valley, in which lie Foligno and Spoleto, and the fruitful valley of Terni separate it from the elevated table land of Rieti, at the foot of which lies the marshy and unhealthy Campagna. There are several isolated mountains on this side of the great range, of which the most remarkable are Monte Cimino, near Viterbo; Monte Santo Oreste (anc. Soracte), a mass of secondary limestone 2,250 feet high, rising from the midst of the Campagna; and the volcanic group of Albano, whose principal peak, Monte Cavo, has an elevation of 3,130 feet, also in the Campagna. The Apennines here have a maximum height of about 8,000 feet; they are bleak and barren except on their lower slopes. The principal river of the Papal States is the Tiber, which rises in Tuscany among the Apennines, and, after passing Perugia and flowing through Rome, discharges itself into the Mediterranean by two mouths. It is navigable by steamers to Rome, a distance of about 24 m., and by small boats to the mouth of its principal affluent the Nera, 70 m. further. The Nera (Nar) has its source in the Apennines above Norcia; it is 70 m. long. The Fiora, Palidoro, and Amiseno, which fall into the Mediterranean, and the Po, Montone, Savio, Uso (believed by some to be the ancient Rubicon), Chienti, Metauro (Metaurus), Tenna, and Tronto, which fall into the Adriatic, are the principal other rivers. The lake of Perugia, or Trasimeno (Thrasymenus), is celebrated for Hannibal's victory over the Romans, 217 B. C. Beside the lakes of Bolsena (Vulsinius), Bracciano (Sabatinus), Albano, and Nemi, the chief inland bodies of water are the lakes of Fogliana, Monaco, Crapolace, and Saressa in the Pontine marshes, and the Valli di Comacchio, in the N. E. part near the delta of the Po, which is properly a vast swamp flooded by the sea.—The soil of the greater part of the Papal States is extremely fertile. Some of the higher mountain lands are nearly or quite barren, and others are adapted rather to pasturage than tillage; these latter are generally occupied by large flocks and herds. About one third of the entire surface is under cultivation. Some of the marshes have been rendered fruitful by draining, especially the Pontine marshes, which were partially reclaimed by Pius VI. No labor of drainage or cultivation, however, has succeeded in making them healthy, and their malarious influence extends even to the neighboring dry country. Fevers and agues are very prevalent here, as well as in the valley of the Po, and on the plain of Rimini. (See MAREMME.) The climate is mild in the S. districts, being tempered by sea breezes, and nothing but the deadly atmosphere prevents the Campagna from being one of the most beautiful regions in the world. Violent siroccos, however, are sometimes felt on the coast. The northern provinces, lying beyond the Apennines, and exposed to the influence of the snow-covered Alps, experience very cold winters, and the Apennines themselves are covered with snow from October to April. At Rome the mean temperature of the year is 60.4° F.; of the hottest month 76°, and of the coldest month 45°. The geological features of the Papal States are not particularly interesting. The whole N. E. portion consists of low flats, forming a continuation of the plains of Lombardy. S. of Rimini, as far as the Neapolitan territory, a belt of tertiary strata, composed principally of travertine, sandstones, and marls, extends along the Adriatic. W. of it lies a belt of upper secondary rocks, such as chalk and other calcareous formations, and W. of this again occurs a large deposit of Jura limestone. Separated from this tract by a narrow tertiary zone is the volcanic region which stretches from Acquapendente in the N. to the S. of Velletri, and in some places extends as far W. as the Mediterranean. Basalt, tufa, and trachyte are the rocks chiefly found in this district. In the S. part of the Mediterranean coast the Jura limestone again appears, and sedimentary and cretaceous rocks, tertiary and travertine marls, or diluvial and alluvial deposits prevail in other places. No minerals have been found in any considerable quantities except iron and alum. Sulphur, saltpetre, rock salt, marbles, pozzuolana, bitumen, alabaster, gypsum, chalk, coal, fullers' earth, potters' clay, garnets, and rock crystals are the other most important mineral products. Sulphur springs and various kinds of mineral springs are abundant. The vegetable productions are wheat, maize, pulse, hemp, oats, barley, rye, rice, wine, oil, tobacco, sugar, indigo, and cotton, beside the orange, citron, pomegranate, and other fruits. The most valuable trees are the mulberry, which is cultivated with considerable care, the olive, oak, ash, elm, pine, and cork. Chestnuts are important articles of food. The forests are chiefly on the Apennines. Horned cattle, including buffaloes, are very numerous and particularly fine. Horses, sheep, pigs, and goats are abundant, and wild boars range in great numbers through the Pontine marshes. The lakes and rivers contain excellent fish, and there are valuable fisheries also in the Adriatic, but they are not prosecuted with industry.—The inhabitants, with the exception of about 10,000 Jews found chiefly at Rome and Ancona, are principally descendants of the ancient Romans, but they have few of the characteristics of the conquerors of the world. They are generally gay, cheerful, handsome, and well proportioned. Even the lowest classes display none of that rudeness and stupidity which are so often noticed in persons of the same rank elsewhere. They have quick understandings and a lively fancy. Keenly sensible of the beautiful or grand, they make pleasure the business of their lives, and delight in music and the other fine arts. Their vices are such as naturally spring from a warm temperament and a susceptibility to æsthetic enjoyments. They are irritable, passionate, jealous, and revengeful. An irresistible propensity to idleness seems to pervade all classes, and the beggars are notorious for their multitude and perseverance.—Agriculture is pursued with little skill and less industry. The lands are generally owned by great proprietors, and either farmed in large estates or leased in small parcels to the peasantry. The present pope has done much for the improvement of agriculture by insisting upon the duty of land owners to give employment to as many laborers as can profitably work their estates. Agricultural societies, with exhibitions and prizes, have been established in many cities, and that of Bologna publishes its transactions. The government also supports professorships of agriculture in the university of

Bologna and other places. The extent of arable land lying uncultivated was ascertained a few years ago to be about $\frac{1}{15}$ of the entire surface. Five sevenths of the inhabitants depend upon agriculture for their subsistence. The manufactures are not of much importance. Woollens, chiefly for domestic use, are made at various towns; silks of the finest quality at Rome and Bologna; there is an extensive production of leather at Ancona, Bologna, Pesaro, and Sinigaglia; smelting furnaces are in operation at Bracciano, Canino, and Conca; plate glass is made at Poggio Mirteto, rope in the N. provinces, and cotton to some extent at Rome. The refining of sulphur is an important branch of industry. Among the other manufactures are paper, alum, vitriol, artificial flowers, wax candles, soap, hats, catgut, licorice, refined sugar, and stone ware. The exports consist of most of the articles above named, with the addition of works of art, antiquities, grain, rice, wool, hemp, animals, timber, &c. The exports of hemp in 1856 amounted to $3,203,851, and in 1857 to $2,897,582, and those of raw silk in 1856 to $1,298,193, and in 1857 to $962,150. The principal imports are cotton, woollen, silk, and linen manufactures, wheat, buckwheat, maize, coffee, sugar, salted fish, and tobacco. The principal commercial port is Ancona on the Adriatic. The following table shows the values of imports and exports for the years 1856, 1857, and 1858, expressed in scudi, the scudo being equal to $1.04.6:

Years.	Imports.	Exports.	Total.
1856	9,797,822	9,685,283	19,483,105
1857	12,627,432	11,625,355	24,252,787
1858	13,510,143	11,690,258	25,200,401

The movements of shipping for the same period were as follows:

Years.	Entered.		Cleared.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
1856	7,597	596,988	6,586	596,624
1857	8,363	683,900	8,437	694,290
1858	7,976	672,967	7,906	672,184

In 1859 the arrivals and departures were as follows:

Ports.	Entered.		Cleared.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Adriatic	2,194	169,658	2,165	169,665
Mediterranean	3,295	358,189	3,315	357,785
Total	5,489	527,847	5,480	527,450

The imports in the same year were $10,080,000 and the exports $9,864,000. The shipping belonging to the Papal States on Jan. 1, 1860, amounted to 1,969 vessels with an aggregate burden of 37,125 tons. Of these, 1,671 (tonnage 32,467) were owned at ports on the Adriatic, and 298 (tonnage 4,658) at ports on the Mediterranean. The crews numbered 10,666 men. The trade of the Papal States is chiefly with Austria, Great Britain, France, Norway, and the various parts of Italy; there is very little with the United States.—The most important public works recently undertaken by the government are the enlarging and deepening of a number of ports, the establishment of telegraphic communication between Rome and its N. and S. frontiers, and the commencement of a system of railways. The line from Rome to Frascati, which is now open, is designed to connect at Ceprano with one extending to Naples. Another from Rome to Civita Vecchia is completed, and a third, from Rome to Bologna, is building. Lines from Civita Vecchia to the frontiers of Tuscany, from Bologna to Ferrara, from Bologna to the Tuscan boundary, and from Forli to Ravenna, have been projected. There are many excellent common roads, the most remarkable of which is the Via Flaminia Lauretana along the Adriatic, supported by immense works and crossing the Metauro by a long and splendid bridge. The magnificent viaducts between Albano and Genzano are also deserving of mention. The marshes of Ostia and the Ferrarese valleys have been thoroughly drained by steam power, and the great Appian way has been cleared.—The education of the lower classes in the Roman states is imperfect, though in each commune there is an elementary free school for boys under the superintendence of the parish priest, and in every city or town a free gymnasium or lyceum. Free communal schools for girls are conducted by religious sisterhoods, and the higher branches of female education are generally taught in convents. In Rome and the other principal cities the means of cheap or gratuitous education are abundant. The ratio of educated persons in Rome is estimated at 1 in 6 of the whole population. In England in 1851 it was 1 in 8½, which is generally regarded as a satisfactory proportion. For higher studies there are 7 universities, viz.: at Rome, Ferrara, Bologna, Urbino, Macerata, Camerino, and Perugia, having all the usual faculties. Admission to these institutions is free, the only charge made to students being on taking out degrees; the average charge for each degree is $20, and this is generally remitted in whole or in part when the student is too poor to pay it. Degrees are also given gratuitously as rewards of merit. The number of students attending the universities and higher seminaries is about 29,000.—The established religion is the Roman Catholic, and other creeds are barely tolerated. According to the last census the Jews numbered 9,237, and other non-Catholics 263. The clergy are very numerous. The highest place after the papacy is held by the cardinals, who rank as princes. Their established number is 70, but there are always several vacancies. They do not all reside in the Papal States. (See CARDINAL.) There are 9 archbishops, 53 bishops, 16,905 secular clergy, and 21,415 men belonging to various religious orders. The number of monasteries is about 1,800, of nunneries 600, and of nuns 8,000. Many of the secular priests are extremely poor, but the convents frequently possess valuable property.—The government of the Papal States is an absolute elective monarchy. The pope for the time being is the supreme head of the state. He is chosen by the college of cardinals, a vote of ⅔ being required to elect; but until the time of Nicholas II. (1059) he was elected by the whole clergy and people. He is assisted by a council of ministers, composed of the heads of the departments of state, the interior, commerce, finance, and war, the director-general of police, and the advocate-general of fiscal matters. These ministers may be either ecclesiastics or laymen. At the present time the secretary of state and president of the council is Cardinal Antonelli, and all the others except one (Baron Baldini) have the title of "prelate" (*Monsignore*), which gives them clerical rank so long as they retain office, though they may not be in orders. Measures proposed in the council of ministers are afterward referred to the council of state, which is composed of a cardinal president, 3 prelates, and 9 laymen. In many cases relating to administration their jurisdiction is absolute, but in matters of legislation their vote requires the sanction of the pope. Financial concerns are regulated by a third council called the *consulta* of state for the finances, and consisting of a cardinal president, a prelate for vice-president, 2 prelates and 3 laymen appointed by the pope, and 22 laymen selected by the pope from a list of candidates chosen by the provincial councils. Each province is governed by a president, who is assisted by a board of 4 lay councillors, having a decisive vote in matters of local finance and taxes, and by a provincial chamber of representatives. The presidents are appointed at Rome, and may be either prelates or laymen. The provincial councillors are nominated by the municipal or communal councils, and these are chosen by the electoral body, which consists of the most highly taxed inhabitants of the commune, with the addition of those who have acquired the higher degrees at the universities. The communal council appoints the local magistrates, all the other officers and servants of the commune, the communal attorney, receiver, and schoolmaster, the surgeon and apothecary, who is obliged to attend the poor gratis, the local police, &c. The administration of justice is conducted according to the civil and canon law, together with the *Motu Proprio* of Gregory XVI., 1831. The judges are appointed by the pope and removable at pleasure. The principal tribunal is the *corte della segnatura* at Rome, which resembles the French court of cassation. There are courts of appeal in all the chief cities, civil and criminal courts in every province, tribunals of commerce at Ancona and other places, magistrates' courts in the communes, and bishops' courts for trials between ecclesiastics. The proceedings are public in all tribunals except the *consulta* instituted for the examination of political offences. In this the testimony is shown to the accused in writing, and he is not confronted with the witnesses. The most serious defects of the judicial system are vexatious delays and the frequency of arrest on suspicion. Capital punishment is extremely rare. The usual penalties are imprisonment with or without hard labor, and for many political offences banishment. In 1855 the whole number of laymen holding office under government was 6,854, with salaries amounting to 1,499,729 scudi; and the number of ecclesiastics, including 179 chaplains of prisons, was 292, with salaries amounting to 127,857 scudi. The military force, June 30, 1860, amounted to 24,279 men, viz.: 20,265 infantry, 1,330 cavalry, 2,510 artillery, engineers, invalids, &c., and 174 attached to the ministry, staff, &c. This includes the Irish brigade (950 infantry and a battery of artillery), which has since been disbanded, but does not include 3,400 men belonging to the corps of the duke of Modena, who were received into the papal service in Aug. 1860. The French army of occupation maintained in the Papal States for the protection of the holy see amounted in 1860 to about 12,000 men of all arms. The navy comprises only 5 vessels, with an aggregate armament of 25 guns. The budget for 1860 represents the revenue and expenditure as follows:

Branches.	Revenue, scudi.	Expenditures, scudi.
Direct taxes and domains	3,678,814	556,760
Customs and excise	7,680,820	2,889,591
Stamps and registration	1,048,104	116,483
Post office	874,866	268,623
Lotteries	1,116,957	787,858
Mint	83,813	44,693
Public debt	....	4,877,478
Licenses	822,593	....
Ministry of the interior	44,659	1,506,949
" of commerce	139,444	741,266
" of war	12,940	2,345,485
Census	....	88,541
Miscellaneous	810	1,844,825
Total	14,458,825	15,019,846

The sum of 100,000 scudi is kept back every year as a sinking fund, so that the total deficit for 1860 is 666,021 scudi. The revenue up to 1830 had been for some years considerably more than the expenditure. The revolution of 1831 produced a large annual deficit, which was gradually reduced to 350,000 scudi in 1847. The revolution of the next two years raised the deficiency to 6,600,000 scudi, and it was again reduced until it amounted to 1,101,495 in 1855, 777,660 in 1856, and 552,302 in 1857. There was a surplus of 42,066 in 1858 and 83,507 in 1859. The public debt amounted to 65,006,193 scudi in 1855, 64,233,749 in 1857, 66,471,274 in 1858, and about 77,000,000 in 1859. Of the debt in 1858, 28,375,000 scudi consisted of foreign loans, 34,201,240 of the permanent interior debt at 5 per cent., and the remainder of floating liabilities. The average rate of taxation, reckoning all sources of revenue, is about $4.72 to each inhabitant; in the United States it is less than $3, in France nearly $10, and in Great Britain $11.70.—The origin of the temporal sovereignty of the pope is involved in considerable obscurity, but it seems probable that it grew up imperceptibly out of his spiritual authority, and was confirmed by, if not based upon, the free choice of his subjects. About the time of Constantine some landed possessions seem to have been attached to the see of Rome which partook of the nature of principalities. By the time of Leo the Iconoclast and Gregory II. (726) the power of the popes, who occupied a dangerous station among the barbarians of the West, while the emperors, to whom they still professed subjection, held their court at Constantinople, had acquired no slight importance. "Their popular election," says Gibbon, "endeared them to the Romans; the public and private indigence was relieved by their ample revenue; and the weakness or neglect of the emperors compelled them to consult, both in peace and war, the temporal safety of the city." The invasion of the Lombards, who, after capturing Ravenna, the seat of the exarch or imperial viceregent, finally laid siege to Rome itself in 741, and the neglect of the Byzantine emperors to take any measures for the protection of their Italian subjects, compelled the pope to look elsewhere for help. Gregory III. accordingly sent an embassy to Charles Martel, offering him in the name of the Roman senate and people the dignity of patrician, and imploring his assistance. Charles was preparing to cross the Alps with an army when he was cut off by death, and the pope died in the same year; but his successor Zachary succeeded in keeping back the invaders, reëstablishing the exarch, and obtaining the restoration of the captured cities. On his death the Lombards made a fresh invasion, the exarchate was again overthrown, Rome was again attacked, and Pope Stephen III. called in the assistance of Pepin. The Frankish ruler marched into Italy, defeated the Lombard king Astolphus, and obliged him to give up to the pope the greater part of the exarchate of Ravenna, comprising the 5 cities of Rimini, Pesaro, Fano, Sinigaglia, and Ancona, called the Pentapolis, and 17 other towns situated chiefly on the Adriatic. From this time the popes in all their proceedings assumed the style of temporal sovereigns. Their authority, however, was little more than nominal until Charlemagne, having completed his father's work by the total destruction of the Lombard monarchy in 774, secured to the Roman pontiffs the exarchate of Ravenna, the island of Corsica, the provinces of Parma, Mantua, Venice, and Istria, and the duchies of Spoleto and Benevento. But with this new order of things arose a new source of dispute. Charlemagne was crowned by Pope Leo III. in 800 "emperor of the Romans," and for many years his successors continued to assert an imperial authority over Italy, which was retained in name by the German emperors down to the close of the 18th century. In the mean time, under cover of papal grants of territory to lay barons, a number of powerful families had grown up in Rome and other dominions of the church, who considered themselves and acted as politically independent. Thus, between the pretensions of suzerainty of the emperors on the one hand, and the turbulence of factions and insubordination of petty princes on the other, the popes of the middle ages were incessantly involved in quarrels. Many of them were exiled, imprisoned, or put to death. Whatever party became for the time dominant raised its own favorite to the pontificate, and not unfrequently there were two or more claimants for the sacerdotal crown. Gregory VII. (Hildebrand), who reigned from 1073 to 1085, made the humiliation of the emperors the great aim of his pontificate; but his famous struggle with Henry IV. resulted in no accession of independence to the Roman states, though during his time an important addition was made to their extent by the countess Matilda of Tuscany, Parma, Modena, and Mantua, who granted all her territories to the pope, renewing the grant afterward to Paschal II. The emperors refused to acknowledge the papal claims, as Matilda being a vassal of the empire could not alienate her rights of sovereignty; and when Innocent III. came to the throne in 1198 he found the emperor real or nominal master of the whole of Italy, while the dominions of Matilda were divided as fiefs among his generals. Innocent was the first pope who made his states really independent. After the death of Henry VI., being appointed guardian of that monarch's infant son Frederic II., and knowing that the people were ready to rebel against the oppressive administration of the German feudatories, he sent his legates to many of the principal cities and towns, and the inhabitants joyfully threw open their gates, took the oaths of allegiance, and received full guaranties of their municipal rights. Otho IV. afterward ceded to him the disputed territory of the countess Matilda, but having seized several of the pope's cities was excommunicated in 1210 and deposed. The enemies whom Innocent had now chiefly to fear were his own subjects. The feudal rights of the nobles and the municipal rights of the cities left him little direct authority; and in Rome especially, where the old democratic spirit showed itself in a system of government composed of a senate, consuls, popular assemblies, and a prefect for the administration of justice, his power was closely circumscribed. The senate was abolished about this time by the Romans themselves, and in its place a single officer was elected with the title of senator, and with control of the militia and judiciary. Innocent contrived to have an oath imposed upon this functionary to defend the rights of the Roman pontiff, and took into his own hands the appointment of the prefect, which had previously been exercised by the emperor. But in other parts of Italy the power of his feudatories was little if at all weakened. Bologna, Perugia, and Ancona were virtually republics; and although Pope Nicholas III. in 1278 obtained from Rudolph of Hapsburg a recognition of the papal sovereignty over a certain specified territory, and a renunciation of all rights within the same which might still pertain to the imperial crown, the popes did not thereby acquire any real authority. In 1309 the papal residence was removed to Avignon, and the Roman states were torn by contending factions, of which the Guelphs were supported by the popes and the Ghibellines by the emperors. In the midst of these disorders Cola di Rienzi succeeded in establishing himself at Rome (1347), and with the title of tribune of the people enforced the laws, curbed the license of the barons, and restored peace and prosperity to the commonwealth. His reign, however, was short. Driven from Rome by the citizens, who had become disgusted with his arrogance, he languished several years in prison at Avignon, until the disorders in Italy became so violent that Pope Innocent VI. sent him back with the title of senator in 1354, in company with the legate Cardinal Gil Albornoz. Rienzi was received in triumph at Rome, but was killed in a popular insurrection at the end of 4 months. Albornoz gained several victories in the field, and reduced the Romagna, the Marches, and the Campagna to obedience; but his successes, owing partly to the interference of the Florentines, were only temporary. The confusion was increased soon after by the springing up of a series of anti-popes, who for many years divided with the legitimate pontiffs the obedience of the Christian world, appointed their own cardinals, and were sometimes in possession of Rome, whither the throne was carried back by Urban VI. in 1378. The schism was healed in 1417 by the council of Constance, which awarded the tiara to Martin V., and the Roman states began to enjoy a more regular form of government. Eugenius IV., however (1431–'47), was driven from his capital by a popular insurrection, and a short-lived republic was instituted, which his minister Vitelleschi suppressed with great cruelty. Alexander VI. (1492–1503) subdued the turbulent nobles of the Marches; and a still further advance toward the consolidation of the state was made by the warrior-pontiff Julius II. (1503–'13), who reduced the barons to obedience, joined the league of Cambrai with France, Austria, and Aragon against the Venetians, who had taken possession of Rimini, Ravenna, and other papal cities, and, having secured his objects, then united with Venice to expel the French. At the time of his death the great sources of disturbance in central Italy were the wars of the French and Spaniards in the N. and S. extremities of the peninsula. His successor Leo X. (1513–'21) not only restored peace, but made some additions to his territory, and earned a still better claim to greatness by a just and enlightened government of his own subjects. In many respects his reign may be called the golden age of the papal sovereignty, and from this time the States of the Church acquired a more compact and homogeneous character than they had ever before possessed. Clement VII. (1523–'34) formed a league with Venice, France, and England against the emperor Charles V., which entailed numerous misfortunes upon him. Rome in 1527 was stormed and pillaged by the imperial troops under the famous constable de Bourbon, and the pope himself was 7 months a prisoner. Sixtus V. (1585–'90) was distinguished for his rigorous administration of justice, and was in all respects one of the most remarkable men of his age. He exterminated the outlaws who infested Rome and its environs. Ferrara was annexed to the Papal States during the reign of Clement VIII. (1597), the duchy of Urbino under that of Urban VIII. (1632), and the duchy of Castro and Ronciglione in the time of Innocent X. (1650). Under Clement XI. (1700–'21) the States of the Church were invaded by the Austrian archduke Charles, and Sicily, Sardinia, Parma, and Piacenza, ancient nominal fiefs of the holy see, were transferred to other hands. Clement XIII. (1758–'69) was deprived of Avignon, Benevento, and other places, and involved in contests with nearly every state in Europe on account of his protection of the Jesuits; but Clement XIV. (1769–'74) suppressed the obnoxious order, and recovered what his predecessor had lost. The liberality and virtues of his successor, Pius VI. (1774–'99), were no safeguard against the violence of revolutionary France; and after Bonaparte had wrested from him Bologna, Ferrara, and Ravenna, and added them to the Cisalpine republic, he was dethroned in Feb. 1798, and carried captive to France, where he died in the following year. In the mean time a republic was proclaimed at Rome by the French general Berthier, with a government consisting of consuls, senators, and tribunes; but it came to an end in 1799, when the army by which it was supported was beaten by the allies. In March, 1800, Pius VII. was elected at Venice, Rome being then in a state of anarchy; and in July, 1801, after the peace of Lunéville, he made a concordat with Bonaparte, who had now withdrawn his troops from all parts of the Papal States except the legations; these had been incorporated with the new Italian republic. The refusal of Pius VII. to expel from his dominions the subjects of all those powers who were at war with France led to a fresh invasion; in Feb. 1808, Bonaparte's troops took possession of Rome; in April, Ancona, Macerata, Fermo, and Urbino were united to the "kingdom of Italy;" in May, 1809, Napoleon declared the remainder of the Roman states annexed to the French empire; and soon afterward the pope was carried prisoner to France, and did not return to his capital until after the emperor's abdication (1814). The congress of Vienna restored to him all the territories of the church, and he devoted the rest of his life to reforming the administration after so many years of disorder. The pontificates of Leo XII. (1823–'9) and Pius VIII. (1829–'31) were comparatively tranquil; but Gregory

XVI. had scarcely ascended the throne in Feb. 1831, when an insurrection broke out in Bologna and other places, simultaneously with risings in various parts of Europe. By the assistance of Austrian troops the rebellion was soon suppressed. The present pope, Pius IX., was elected in 1846, and at once inaugurated a series of reforms and concessions which were hailed throughout Italy with the most intense enthusiasm. But the ultra liberals soon found that he was unwilling to go as far as they desired. Enthusiasm gave place to insults, and the revolution which broke out in France and northern Italy produced a powerful effect at Rome. Yielding to the popular movement, the pope in March, 1848, issued a proclamation promising a constitution on a liberal basis, with deliberative chambers, and at the same time formed a new cabinet composed of 10 laymen and only 3 ecclesiastics. Much against his will he was forced to take part with Charles Albert in hostilities against Austria; but the half organized force which marched from Rome to the Mincio cannot be said to have added much strength to the Italian army. In the mean time the people of Rome were rapidly taking all power out of the hands of the government, and in September it became necessary to construct a new ministry. Count Rossi, formerly French ambassador, and a moderate liberal, was intrusted with the department of the interior and finance, and Cardinal Soglia with the ministry of foreign affairs and presidency of the council. This produced for a time a good effect, but on Nov. 15, the day appointed for the opening of the chambers, Rossi was assassinated at the entrance of the legislative halls. With him the whole government fell. The next day the populace, assisted by the civic guard, forced their way into the Quirinal and compelled the pope to accept a radical ministry. Thenceforth he remained a prisoner in his palace, taking no part in the administration, and on the 24th he escaped in disguise to Gaëta in the kingdom of Naples. After some ineffectual negotiating to induce him to return, the chambers at Rome appointed a provisional government of 3 persons; the ministry of Mamiani was replaced by one still more democratic; a constituent assembly was called; the revolutionary party was reënforced by a large part of the Swiss troops in the papal service, and by a body of 3,000 men collected by Garibaldi; and on Feb. 18, 1849, the constituent assembly dethroned the pope and proclaimed a republic. The Roman states now entered heartily into the Italian war of independence, and when the revolutionists were driven from northern Italy by the Austrian arms became an asylum for the refugees. The government was nominally administered by Mazzini, Armellini, and Saffi, but the power was really shared between Mazzini, Garibaldi, and Avezzana. In the mean time, however, the French government had resolved upon restoring Pius IX. to his throne, and in April an army under Gen. Oudinot landed at Civita Vecchia and immediately marched to Rome. A serious repulse which they experienced before the walls (April 29) was followed by an armistice, during which a Spanish auxiliary corps took possession of the S. provinces. On June 2 the siege was begun in form, and by July 1 the French were complete masters of the city. The pope appointed a council of state to carry on the government, promised further administrative reforms, and published an amnesty, though with many restrictions; but the chambers were not revived, and the pontiff did not return to his capital until April, 1850. The only effect of the revolution was to defeat the hopes of the liberal party, and induce the pope to adopt a much more conservative policy than he had shown in the beginning of his reign. Supported by the French army of occupation and by the Austrians who held the Romagna, the government succeeded in maintaining tranquillity until 1859, when the Italian war gave occasion for fresh symptoms of discontent. The withdrawal of the Austrian garrison from Bologna, June 12, was the signal for a peaceful revolt of the whole Romagna, and the organization of a provisional government, which offered the dictatorship to the king of Sardinia. Victor Emanuel, without immediately accepting the sovereignty, intrusted the government of the revolted legations to Massimo d'Azeglio, and afterward to Signor Buonocompagni, and in March, 1860, formally declared them annexed to the Sardinian monarchy in accordance with a vote of the inhabitants. They constitute, with Parma and Modena, what are called the "Æmilian provinces," from the ancient Via Æmilia, which traversed them. The rebellion had extended S. of the Apennines also, and an insurrection at Perugia was quelled by the Swiss troops (June 20) with much bloodshed. At Rome disorders took place March 12, 1860, but were suppressed without much difficulty. The pope enlisted a considerable force of foreign troops, a large number of whom were Irish, and offered the command of his army to the distinguished French general Lamoricière, who accepted the post in April. Early in September, following close upon the successes of Garibaldi in Sicily and Naples, revolt broke out in Urbino e Pesaro, Umbria, and the Marches, and the insurgents on the 11th placed themselves under the protection of Victor Emanuel. Accordingly a Sardinian force under Gen. Fanti took possession of Perugia and Spoleto, while Cialdini with 50,000 men made himself master of Pesaro and Urbino, and marched toward Ancona, where Lamoricière had concentrated the pontifical troops. After a siege of 7 days, the Sardinian fleet coöperating vigorously in the attack, the city capitulated Sept. 29, Lamoricière and the troops then with him becoming prisoners of war. On Oct. 18 the Sardinian legislative chambers passed a bill empowering the king to incorporate the Two Sicilies and the Papal States with his dominions. In Sevember a vote of the population of the revolted provinces was taken on the subject of annexation to Sardinia, and resulted in an overwhelming majority in favor of that measure. Benevento and Ponte Corvo, being surrounded by Neapolitan territory, have also been dissevered from the Roman states in the course of the revolution in the kingdom of the Two Sicilies, and the hold of the pope upon his remaining provinces, now restricted mainly to those bordering on the Mediterranean, is extremely weak. The emperor Napoleon III. has proposed a voluntary surrender by his holiness of all his temporal dominions except the city of Rome and its immediate neighborhood—a proposition which Pius IX. rejected with considerable warmth.

PAPAGAYO, Gulf of, an indentation on the Pacific coast of Nicaragua, between the bay of Salinas and Punta Desolada, so called from the baffling, revolving winds which beset it, and which in their course may be supposed to have some fanciful relation to the crooked beak of the parrot, in Spanish *papagayo*. These winds are occasioned by the trade winds from the Caribbean sea, which sweep entirely over the isthmus of Nicaragua, through the valley of the Nicaraguan lakes, where they encounter the sea breezes of the Pacific, producing the phenomenon referred to. The port of San Juan del Sur lies in the bight of this gulf, and hence is only accessible, with difficulty, by sailing vessels.

PAPAW (Fr. *papayer*, a name applied to the *asimina triloba* of Dunal), a North American tree 10 to 20 feet high, belonging to the natural order *anonaceæ* of Jussieu, tropical plants of which one genus alone belongs to the United States. There are several species, either small trees or shrubs, the roots and bark of which possess an extremely nauseous odor; leaves pubescent when young, alternate, destitute of stipules, distinctly articulated with the stem, entire; flowers axillary, mostly solitary; sepals 3 to 4, persistent, often united at the base; petals 6 in 2 rows, hypogynous, coriaceous; stamens indefinite, packed closely together on a hypogynous torus; filaments short; anthers adnate, extrose; ovaries commonly numerous; styles short or none; stigmas simple; ovules solitary or several erect; fruits consisting of dry or succulent carpels with one or many seeds, either distinct or concrete into a fleshy mass; seeds anatropous, testa brittle; embryo minute at the base of a hard ruminated albumen. The common papaw is described by Michaux as having its trunk covered with a silver-gray bark, which is smooth and even polished; the wood is spongy, extremely soft and destitute of strength, and applicable to no use in the mechanical arts; the leaves are borne on short petioles, and are alternate, 5 or 6 inches in length, and of an elongated form, widening from the base to the summit. They are of a fine texture, and the superior surface is smooth and brilliant. The flowers, which are attached by short peduncles, are pendent and of a purple hue. When the fruit is ripe, it is about 3 inches long and 1½ thick, of a yellowish color and of an oval form, irregular and swelling into inequalities. Its pulp is soft and of an insipid taste, and it contains several large stones. It is never brought into the markets, and is sought in the woods only by children. It is however described by some as esculent and very fragrant; and it is suggested by Dr. Darlington that, as it is said to be much improved by cultivation, it might be well to try what further and careful culture could effect. The common papaw is called by the Canadian French *asiminier*, the generic name given by Adanson being only a change from that. This species is not uncommon on banks of streams in the middle, southern, and western states; and in the rich valleys intersected by the western waters, it forms thickets exclusively occupying several acres. The small-flowered papaw (*A. parviflora*, Michaux's "Flora") is a small shrub rarely exceeding 2 feet in height, with a few branches near the summit; the young branches are clothed with a velvet-like ferruginous pubescence; leaves alternate, obovate, abruptly acute, and slightly acuminate, a little hairy on the upper surface, pubescent underneath, on very short petioles; flowers solitary, nearly sessile; calyx very pubescent, deciduous; corolla greenish purple, stamens shorter than the corolla; fruit about 1½ inches long, irregularly oval. This species grows in sandy pastures along the sea coast of Carolina and Georgia. The *A. obovata* of Torrey and Gray is a shrub 1 to 2 feet high, with oblong-obovate, obtuse leaves, with a ferruginous tomentum beneath. Nuttall describes it as a very low shrub with whitish flowers equal to those of the glaucous magnolia. It occurs in the sandy woods of Georgia and Florida. Another species is the *A. pygmæa* (Mx.), a small shrub 6 to 18 inches high, with nearly sessile, coriaceous, persistent leaves, 4 to 6 inches long, very narrow and reticulate; flowers solitary, axillary, large, on short peduncles; petals reddish brown. It is found in sandy fields of Georgia and Florida.—The *anonaceæ* comprise, beside these comparatively insignificant fruits, the delicious custard apples of the East and West Indies, the cherimoyer of Peru, the sweetsop, &c. Martius in his *Flora Brasiliensis* (Tübingen, 1829–'38) has many interesting particulars concerning the order.

PAPER (Gr. *παπυρος*, papyrus), a material prepared in thin sheets from vegetable pulp, and universally employed for writing and printing upon, taking the place of the articles used by the ancients for their writings. (See Papyrus, and Parchment.) In the European countries papyrus, chiefly of Egyptian manufacture, continued in general use for some centuries after the Christian era. In the 5th century the city of Alexandria numbered this among its most profitable branches of manufacture, and it ranked with the chief items in the commerce of the nations. Several varieties were known to the Romans, of which that most widely esteemed, until the introduction of the Claudian paper, was known as the Augustan paper. It was 13 fingers in breadth, such being the extreme length of the strips of papyrus of which the material was composed. The strips, exceedingly thin and delicate, crossed each other at right angles, and were compressed into one close sheet, being secured by a paste or sizing. The Claudian paper was made much stronger and better adapted for writing upon, by laying and cementing the fine thin strips upon a groundwork of the coarser kind of papyrus. Such paper continued in use down to the 11th century in Italy, and to the 12th in France, and was finally displaced by the *charta bombycina*, or paper made of cotton, the Greek word βομβυξ being in ancient times used either for silk or cotton. At what time raw cotton was first applied to this use is not known. Montfaucon mentions having seen a manuscript of this paper of the date of 1050; but it is supposed the European manufacture of paper from the pulp of vegetable fibres may be dated full 50 years earlier than this. It appears to have been introduced into Europe from the East, through the Arabians and Persians. The inhabitants of several Asiatic countries have long manufactured paper from a variety of materials; and the Chinese are said to have varieties peculiar to almost every province, the processes for producing which are no doubt very ancient. They employ the inner bark of different sorts of trees, the pulp made of which they compress into thin sheets. In the province of Se-chuen, it is said, they make paper of linen rags, as it is made in Europe; and in Fo-kien they use the young bamboo. This very fibrous material is cut into pieces several feet long, is well macerated several days in water, then dried under a covering of quicklime, which is watered at the time to cause it to slake. It is then washed, cut into filaments, dried and bleached in the sun, boiled in water, and reduced to a pulp by beating the substance in a wooden mortar. A glutinous vegetable extract is then mixed with the pulp, and being thoroughly incorporated with it by beating in mortars, the mixture is poured into tubs in the condition of a viscid semi-fluid. From this the workmen withdraw enough at a time for a sheet of paper, which is formed and partially dried in a mould, and when removed from this the drying is completed upon the surface of hot air pipes, as the flues from a stove. To prepare it for writing upon, it is sized by dipping it into a solution of alum. The Chinese rice paper is prepared from the inner portion of the stems of the *æschynomene paludosa* (Roxburgh), a hardy leguminous plant, which grows abundantly on the marshy plains of Bengal, and about the lakes near Calcutta. The stems are rarely more than 2 inches through. They are exported in large quantities from the island of Formosa to China and Calcutta. The stems being cut into proper lengths for the sheets, the pith is cut spirally around into a thin slice after the manner of cutting corks, an operation requiring a knife with a very keen edge. The sheets, which are sometimes a foot long and 5 inches wide, are spread out and compressed into the form of paper. The material on being wetted swells and retains a raised surface which gives to the drawings made upon it a pleasing effect of relief. The inferior sorts are largely used for making artificial flowers. The paper of the best qualities is chiefly used for paintings of birds, flowers, insects, &c., for which purpose the original sketch is made of a deep black upon other paper, and the rice paper being laid upon this, the paints are applied to its surface. This paper is well adapted for lithographic printing; other silky varieties are equally well suited for steel and copper plates. The Japanese manufacture varieties of paper from the inner bark of 4 or more species of trees, one of which is the *morus papyrifera sativa* or true paper tree. Their processes exhibit great skill and care, and some of the paper they prepare is remarkable for its strength, which is so great that it may be used for many of the purposes of textile fabrics, and indeed resembles silk and woollen stuffs so closely as to be sometimes mistaken for them.—According to Gibbon, the art of manufacturing paper was derived from the manufacturers of Samarcand, where it was introduced from China in the year 651, and thence spread over Europe; and he adds, on the authority of the librarian Casiri, in the *Bibliotheca Arabico-Hispana*, that paper was introduced at Mecca in 707. Linen rags appear to have been used at a somewhat later period than cotton, and in Spain, particularly in the provinces of Valencia and Catalonia, where flax abounded, the manufacture of paper from this material was probably commenced at an early period. The oldest specimen of linen paper in Spain having a date is said to be a treaty of peace between the kings of Aragon and Spain of 1178. As stated in the "Chronology of Paper and Paper Making," by J. Munsell (Albany, 1857), paper mills were in operation at Toledo in Spain in 1085, making paper from rags with the use of moulds for forming the sheets; and in 1151 the best paper was made at Xativa from raw cotton and rags, which were reduced to pulp by stamping them in mills instead of grinding after the Moorish method. In France the manufacture dates as far back as 1314, and about the same time in Germany, and in Italy it was conducted in 1367. Linen paper seems to have been common in Germany in 1824 and afterward. Paper was known in England in the time of Edward II.; but parchment or vellum was the writing material commonly employed. It was manufactured in England as early as the reign of Henry VII.; but the first mill of which there is any particular account is one built in Dartford in Kent, by a German named John Spilman or Spielman, jeweller to Queen Elizabeth. This is celebrated in a poem on paper of the date of 1588. The business made but slow progress, and during the 17th century the supplies were chiefly from France, which country, with Holland and Genoa, maintained a decided superiority in this production. The qualities of the various papers produced are compared by Fuller in 1661 to those of the people that manufactured them; the French being "light, slight, and slender; the Venetian neat, subtil, and court-like; and the Dutch thick, corpulent, and gross, sucking up the ink with the sponginess thereof." In England great improvements were introduced by the French refugees of 1685; and from this time the business advanced in importance. In 1690 particular attention began to be directed to the production of white paper, almost all that was previously made being brown. The total annual value of the product at the close of the century did not exceed £28,000, and the number of mills in all England was less than 100. In 1721 there were produced about 800,000 reams, which was about ⅔ of the total consumption; and two years afterward the value of the yearly product was estimated at £780,000. In the middle of the century the importations from Rouen in France had decreased to such an extent, that many of the French paper mills were abandoned or converted to other uses. The celebrated manufacturer James Whatman had his mill in operation at Maidstone in 1760; and from that time to the present its product has been famous for its superior quality. A medal was awarded for it in the great exhibition of 1851 to his successors. About the same period important improvements were made in the manufacture in Holland and Germany. Cylinders armed with steel blades for reducing the pulp were substituted by the Dutch, about the year 1750, for the stampers which were before in use. They were run with far greater ease by their windmills, and proved much more effectual. The French academy of sciences sent an agent in 1768 to Holland to visit the paper mills and investigate the processes in use. The Germans attempted the use of straw in 1756; and in France in 1776 a book was printed upon paper of good white appearance made from the bark of the linden (basswood). The greatest advances in the manufacture were now made by the French. In 1798 Louis Robert, a workman in the establishment of M. Pierre François Didot at Essonnes, announced that he had discovered a new way of making, by the labor of one man only, sheets of paper of very large size, even 12 feet wide and 50 feet long. This was by means of an endless web, and the machine as afterward perfected in England became the most important piece of apparatus in the manufacture of paper. Robert obtained a patent right from the French government and an appropriation of 8,000 francs. The Messrs. Fourdrinier, a wealthy firm of stationers and booksellers in London, who purchased the right for Great Britain, expended £60,000 in matters connected with the improvement and manufacture of the machine, and were made bankrupt before they could realize the dues to which they were entitled for its use. In 1800 good white paper to the amount of 700 reams a week was made for the first time from old waste and written and printed paper, such as had always before been thrown away. This was done in England by Matthias Koops. He also made better paper from straw, wood, and other vegetable matters, without the addition of any other known paper stuff, than had ever before been produced. He obtained a patent for the use of straw, hay, thistles, waste and refuse of hemp and flax, &c.—In the United States the first paper mill of which we have any account was erected in 1714 upon Chester creek in Delaware. It was afterward owned by a Mr. Wilcox, who furnished Franklin with paper from it. The mill is still in operation, belonging to a son of Mr. Wilcox, and paper is made in it by hand on the same process which was in use a century ago. In the colony of Massachusetts Bay, as appears from the statement of Salmon in his "Modern History" (vol. iii. p. 494), a paper mill was set up about the year 1717, and in 1720 was making paper to the value of about £200 per annum. But other authorities give the year 1730 as the date of the first paper mill in Massachusetts, which was built at Milton under the encouragement of the bounty offered by the legislature in 1728. Mr. Daniel Henchman of Boston, who it is supposed built this mill, exhibited a sample of his paper before the general court in 1731. There was in 1728 a paper mill at Elizabethtown, N. J., owned by Mr. William Bradford. The Massachusetts mill appears to have been stopped for some time, as is supposed for want of competent workmen; and in 1760 it was started again by a British soldier stationed at Boston, for whom a furlough had been obtained long enough for this purpose. In 1768 a mill was completed at Norwich, Conn., by Christopher Leffingwell, under official encouragement. Another was in operation in 1776 at East Hartford, belonging to Watson and Ledyard, which supplied about 8,000 sheets weekly for the press at Hartford, and most of the writing paper used in the state and the continental army. There were at this time three small mills in Massachusetts, and one in Rhode Island, and not long after one at Bennington, Vt. The manufacture had made much more rapid progress in Pennsylvania, New Jersey, and Delaware, where in 1770 the total number of paper mills was about 40, and the annual product of paper was worth about £100,000. In New England and New York the supply was far short of the demand; and it was with the greatest difficulty that rags were procured for the mills. The people were not accustomed to preserve them, and though advertisements announced when the bell carts would go round to collect, and urgent appeals in prose and verse were made to the patriotism of the ladies, accompanied with offers of 3*d.* per pound for clean white cotton or linen rags, and 2*d.* for white, blue, brown, and check, the quantities obtained were very meagre. The first paper mill in northern New York was built in 1793 at Troy by Messrs. Websters, Ensign, and Seymour, in which from 5 to 10 reams were made daily. The next year one was constructed at Fairhaven, Vt., by Col. Lyon, and the bark of the basswood was employed in it for making wrapping paper. In New England and New York, mills built for other purposes, as grist mills, began to be converted into paper mills; but the greatest difficulty was experienced in procuring rags. The printing offices could not be furnished with the supplies they required; and in 1804 the American company of booksellers offered premiums to any one who would make the greatest quantity of paper from other materials than cotton and linen rags. In 1810 the number of mills in the United States was estimated at 185, of which 7 were in New Hampshire, 38 in Massachusetts, 4 in Rhode Island, 17 in Connecticut, 9 in Vermont, 28 in New York, 60 in Pennsylvania, 4 in Delaware, 3 in Maryland, 4 in Virginia, 1 in South Carolina, 6 in Kentucky, and 4 in Tennessee. They produced 50,000 reams of paper worth $3 per ream, weighing about 500 tons; 70,000 reams of book paper at $3.50, weighing 630 tons; 111,000 reams of writing paper at $3, about 650 tons; and 100,000 reams of wrapping paper, at 83 cts.; also paper hangings and other articles. At this time rags began to be imported largely into the United States from Europe. Each mill, as ordinarily constructed in Massachusetts, had 2 vats, and made from 2,000 to 3,000 reams of the different sorts of paper. It required a capital of about $10,000, and employed 12 persons or more. The materials used were chiefly rags, old sails, and junk. Steam power was first applied to this manufacture in the United States at Pittsburg in 1816; the engine was of 16 horse power, and the annual product of paper was worth $20,000. In 1820 the annual value of the paper manufactures in the United States was rated at $3,000,000. In 1822 the publication of Rees's "Cyclopædia" in Philadelphia consumed 30,000 reams of paper. This was the largest work in the English language. The most extensive paper mill in the United States in 1825 was that of Messrs. D. and J. Ames at Springfield. In 1828 the consumption of paper for the newspapers throughout the country was estimated at 104,400 reams, costing $500,000. The total value of the product was nearly $7,000,000, and of the rags and other materials employed in the manufacture about $2,000,000. The Fourdrinier machine, imported from England, was in use in a number of mills, Massachusetts in 1829 having 6 of them, or one for every 10 mills. These, and improved methods of cleansing and bleaching, principally by the use of chlorine, gave a great impulse to the business, and rendered the coarser materials available for the manufacture of the better qualities of paper. The importation of rags continued to increase, their value in [illegible] and 1840 exceeding $560,000 a year; the imports of paper in each of the same years amounted to about $150,000, and the exports to about $85,000. In 1850 the value of the rags imported was $748,707, and of paper [illegible] Three fourths of the rags were from Italian and Austrian ports, and their cost was [illegible] for 100 lbs. The capital invested in the manufacture was about $18,000,000, the annual product of paper about $17,000,000, and the number of mills about 700. All but two of them were provided with the Fourdrinier machine. The town of Lee in Berkshire co., Mass. became celebrated for its paper mills, having [illegible] mills in 1851, which produced about [illegible] lbs. of paper daily, and $2,000,000 worth per annum. The consumption of paper in 1852 equalled in amount that of England and France together. The exports of paper and stationery continued small, but the imports for the year ending June 30, 1853, amounted to $602,659, and of rags to $982,837, costing $4.31 for 100 lbs. The number of mills in active operation in 1854 is stated to have been 750, producing annually about 250,000,000 lbs. of paper, worth [illegible], and consuming 405,000,000 lbs. of rags, which cost about 4 cents a pound. The demand, however, still exceeded the supply, so that the price in 1854 advanced 2½ cts. per pound, causing several of the newspapers in New York and Philadelphia either to increase their rates or reduce their size. Experiments in introducing new materials for the manufacture had proved successful as to basswood; and at Little Falls, N. Y., a large and very superior mill was built by the ligneous paper company to use this material alone. At Norwich, Conn., the mills of the Chelsea manufacturing company were producing in 1856 at the rate of 7 tons of paper in a day. The Pacific mills of Windsor Locks in the same state are about as extensive, and are probably not exceeded in their capacity by any mills in the world. The total amount produced in the United States at this time was about [illegible]000 tons per annum; in Great Britain [illegible] tons; and in France 70,000 tons. The consumption by the large publishing houses is immense, that of a single newspaper, the "New York Tribune," being about 570,000 sheets or 30 tons a week. This is chiefly supplied by a mill at Niagara falls. The "London Times," using a much heavier paper, consumes [illegible] or 90,000 sheets daily.—The materials suitable for the manufacture of paper are all those vegetable fibres which have a corrugated edge and may be macerated into a pulp with water; and those are to be preferred which, while they can be obtained in the greatest abundance at the least cost, can also be converted with least labor into pulp. Nothing has yet been found better adapted for this manufacture than the fibres of cotton and flax, and these are obtained most cheaply after they have served their original purpose, and in the form of rags are discarded from further service. By reason of the wear to which the fibres have been subjected, and their washings in alkaline waters, the material is already partially prepared for reduction to pulp. The varieties of white paper employed for printing and writing until within the last 10 years were prepared almost exclusively from rags of cotton and linen; while the cheaper brown and colored wrapping papers were manufactured, as they still are, from coarser materials, such as the waste of rope manufactories and of cotton mills. By recent improvements these are found to be applicable to the manufacture of the finest white paper, and even tissue paper; and such are now produced on a large scale in the paper mills of the United States. The large establishment of Messrs. H. V. Butler and co. at Paterson, N. J., consumes cotton waste, hempen bale ropes, and bagging exclusively, and no works produce paper of superior qualities. The brown papers made in American mills from these materials combined together is unequalled by any similar papers made in Europe. Still coarser papers are made of the fibres of the worn-out India bagging, which in Great Britain especially is obtained in immense quantities, and is there largely appropriated to this use. (See COIR, GUNNY, and JUTE.) Straw is used also to a considerable extent, especially in England, as an auxiliary to rags; and when mixed with them, its fibre gives stiffness to the paper, which is largely used for newspapers. The stalk of the straw contains silica, which must be removed by long boiling in a strong alkaline lye, and thus the cost of the preparation of the material is necessarily greater than that of rags, which require much shorter treatment of this character; and its fibre moreover is short and tender. In the United States the cane or reed of the southern swamps offers itself as a fibrous material that can be procured at little cost in unlimited quantities. Various attempts have been made to convert this into paper, and with some success. At a mill a few miles N. from Baltimore considerable paper has been made from it, and samples have also been exhibited in St. Louis, Mo.; and the success is considered so decided that mills are now in process of construction at Wilmington, N. C., for preparing the fibre upon a large scale for supplying paper mills. The reeds freed from their joints are boiled under pressure in alkaline solutions, and the product is afterward bleached as in the ordinary process. By another American process a singular expedient was adopted for reducing the material to fibres. The long canes were introduced into iron cylinders of great strength so made as to be closed steam-tight. Steam was then forced in under great pressure, and the end of the cylinder corresponding to the muzzle being suddenly opened, the canes were shot out as from a gun and torn into slender filaments. Around the cylinder the silica that constituted a considerable part of the hard outer covering of the canes collected in piles of snow-white and apparently perfectly pure material. A similar plan has been employed in tearing to pieces logs of bass or white wood, which furnishes a fibre adapted for the production of paper. Prepared in other ways, basswood is now in use in some of the mills of northern New York. Its fibre is however rather weak and short, and tends to fall to powder in its reduction to pulp. Paper made from the wood of the hemlock has recently been introduced to some extent for newspapers.—Numerous other vegetable substances have been carefully subjected to practical tests and converted to some extent into paper, several of which have been named in the account already given of the progress of the manufacture. In the Smithsonian institution there is a copy of a work by Jakob Christian Schäffer on experiments in making paper from other materials than rags (Erlangen, 1772), which is printed on more than 60 varieties of paper made from as many different materials. The works of the marquis de Villette, published in London in 1786 in 24mo., are printed on paper made of marsh mallow; and at the end are single leaves of paper manufactured at Bruges from 20 different species of plants, including the nettle, hops, moss, reed, several kinds of trees, herbs, &c. Mr. Munsell, in his work referred to above, enumerates 103 substances which have been experimented upon. They are chiefly vegetable matters; but among them are some animal and a few mineral substances. The chief dependence of the manufacture, however, is first upon rags; then upon the waste of cotton mills and rope factories; and then upon straw and basswood. —In the manufacture of paper, the first object is to prepare the raw materials for the processes by which they are brought into a pulpy condition. This is effected by various methods, which vary somewhat with the character of the materials. Rags are first cut into narrow strips by women, who sit each at a small table having a wire network surface and furnished with a large vertical knife blade, the back of which is toward the operator. The rags are cut by drawing them across this knife, and all hard substances, as buttons, hooks and eyes, and pieces of woollen and silk, are separated and laid aside, while the rags are thrown according to their characters into the appropriate compartments of a box placed conveniently at hand to receive them. Much dirt and sand falls through the netting. The next process, where the rags are not picked out or "overhauled," is the willowing and dusting. In cylindrical-shaped machines the rags are tossed about and thoroughly tumbled by the long teeth upon the revolving cylinders and against the fixed teeth set in the outer casing, whereby they are freed from the loose dirt and made ready for the boiling process. For this an alkaline solution is used, of variable composition according to the nature of the rags, the more highly colored requiring strong lye. For 100 lbs. of rags from 6 to 10 lbs. of carbonate of soda is used, and half as much quicklime. The lye reduces the fine hard particles of the vegetable fibre, which if allowed to remain would cause knobby places in the paper, removes much of the dirt that still adheres to the rags, and partially whitens them. The solution is best heated by means of steam pipes, and various plans have been devised of accomplishing the object most efficiently, so as to subject all portions alike to the action of the lye. Large cylindrical iron boilers, set horizontally and made to revolve, were first employed by Mr. H. V. Butler of Paterson, N. J., and in various modifications have since been introduced into the best mills of Europe and the United States. These are provided with compartments perforated with holes for draining off the water, and they are charged at the ends with several hundred weight of rags at a time, when steam is admitted under a pressure of 60 lbs. or more per square inch. By the use of high steam, a saving of the soda introduced to facilitate the cleansing, as well as of much time, is effected. The operation for the full charge is completed in 8 to 10 hours. The rags are then ready for the process by which they are converted into pulp. This used to be effected by allowing the rags to ferment several weeks in stone vats, and then beating them with stamps or pestles in a wooden mortar. The mortar had a cavity in the bottom covered with a thick iron plate grooved on the upper surface, and the under sides of the stamps were also grooved. A hole through the mortar allowed the dirty water to escape from the cavity, while the fibres of the rags were arrested by a hair cloth covering. The machine known as the "engine," invented by the Dutch, took the place of the mortar, and is now in general use. Two kinds are employed, called respectively the washer and the beater, both constructed upon the same plan, the one designed for washing the rags, and the other for rubbing and reducing them to pulp. The latter may be placed below the former, and receive the rags directly from it; but usually they are separated by the bleaching apparatus and process. Each is a trough, it may be 10 feet long by 4½ wide and 2½ deep, cast in one piece of iron with the ends rounded, and provided with a longitudinal vertical partition that reaches within 2 feet of each end. The trough is thus divided into two chambers, which connect together at the ends. Across the middle of the cistern a shaft is set which carries a solid wooden cylinder in one of the divisions, and which can be raised or lowered about an inch by means of a screw at one end of the "lighter" or lever beam upon which the end of the axle rests. This cylinder is armed with about 40 longitudinal steel ribs or bars in a washer, and 60 in a beater, which project about 2 inches from its surface. Under the cylinder another set of steel bars, each of them from ¼ to ⅓ inch thick, arranged in a segment of about 6 inches width, conforming to the curve of the cylinder, is firmly secured in the floor of the cistern. These bars, forming the "plate," are bent in the middle, so as to make a slight angle with the bars of the roll, by which means the fibre is drawn out and reduced in length by a shearing action. The floor of the cistern rises up toward the cylinder, and behind the plate is carried up so as to form a breasting, the top of which is nearly as high as the centre of the cylinder. From this point it slopes rapidly down to the bottom of the trough, forming what is called the "back fall." The cistern being filled with water sufficiently to immerse the lower bars of the cylinder when this is raised up, the rags are introduced and spread about with the hand, and the cylinder is made to revolve. This causes a current to flow which moves the rags along with it, bringing them under the cylinder, and carrying them around the partition till they are brought again between the bars of the cylinder and those of the plate beneath. As the operation goes on, the cylinder is gradually lowered, till toward the last, when the rags have been worn down into the pulpy condition known as half stuff, the space is narrowed till the cylinder almost touches the plate. Before reaching this point, when the rags are coarse and offer considerable resistance in being drawn through the space, the motion, as the cylinder revolves with great rapidity, is very rough and jerking; but in the course of 3 or 4 hours it becomes steady, indicating a thorough reduction of the material to pulp. A box cover is constructed over the cylinder to prevent its throwing out the contents of the trough by the rapidity of its revolution. During the operation fresh water, which should be perfectly clean and pure, is continually admitted, and the dirty water is removed by some one of the several contrivances that have been devised to take it up and leave all the fibre behind. That in general use consists of hollow cylinders covered with very fine wire cloth, and made to revolve slowly in the current of pulp, as it passes through the other compartment after leaving that occupied by the washing cylinder. Inside the cylinder the water is caught in buckets, and being raised up in them is discharged into a tube which passes through the axis of the cylinder, and thus it escapes from the machine. In this process much importance is attached to the condition of the bars on the cylinders and plates, care being taken that they are adapted to the particular work, and are kept in good order, so that the rags are rather rubbed rather than cut into pulp. Only by giving plenty of time to the operation is the material brought into the proper consistency, incorporating with it sufficient water. If the work is not done in this manner, good paper cannot be produced from the pulp. The time expended in properly washing a charge of from one to two cwt. of rags should be from 3 to 4 hours; but the operation is often completed in less time, to the detriment of the paper. The number of engines in a paper mill is commonly referred to as indicating its capacity. The power equired for running each cylinder toward the lose of the process, when the space between ts under surface and the plate is narrowest, is bout equal to that of 7 horses. From this nachine the half stuff is allowed to flow out by large pipe in the bottom to the draining chest, where, being freed from much of the water it ontains, it next enters the stone cisterns in which the bleaching is effected. In these a soution of chloride of lime, prepared with about ne pound of the salt to 2 gallons of water, s employed. The liquor drains off through lates of zinc in the bottom, which are perorated with minute holes, and is then pumpd up again and used with additions of strong resh liquor. By 24 hours' steeping the pulp s converted to a nearly pure white color; and t is then removed sometimes to a strong iron ox, in which it is subjected to the action of a ydraulic press for the purpose of forcing out nost of the chlorine water, or goes directly o the beating engine, like the washing enine already described. In this the stuff is irst run for half an hour or more with the cylnder raised, so as not to rub the pulp. The ction is hence merely that of washing, and he effect is to remove the chlorine, which if allowed to remain would render the paper britle and liable to soon crumble to dust. The salt yposulphite of soda, technically termed "anichlor," is of late advantageously introduced o neutralize the chlorine and expedite its renoval. Suitable mixtures are then added for izing, according to the quality of paper to be nade; and also any coloring matter. The orlinary size is a combination of soda and rosin o form a soap from which the rosin is preipitated upon the pulp by the subsequent adlition of alum. The cylinder is then lowred and the pulp is ground by its action to a nuch finer consistency, its quality depending pon the judicious management of the cylinder, s not letting it down too fast nor too much at nce. The beating is completed in 3½ to 4 ours; and the stuff is then discharged into a arge receiving vat. An improvement upon the utch engine has been invented by Mr. Joseph ingsland of New Jersey, which is in successul use in this country and in England. It consists in a revolving grinder placed between two tationary grinders, the pulp being made to low first through the space on one side and hen through that on the other side of the evolving grinder, after which it is discharged n a constant stream. The revolving grinder nakes about 200 revolutions in a minute, and he spaces are adjusted by screws for coarse or ine pulp as may be required.—The pulp being ollected in stone vats, from which it is to be aken out for converting into sheets, is agitated y a stirrer to keep it of uniform consistency. y the old process of hand making, which is ot yet entirely abandoned, it is then dipped ut and moulded by a workman, called the vatnan. The mould which he uses, holding it in oth hands, is a shallow mahogany box somewhat larger than the sheet of paper, covered with parallel wires placed near together, and crossed by a few others.* A loose frame called a deckle, of the exact size of the mould, is held down upon its upper surface, serving as a margin to the wires, and determines the size of the sheet. A proper quantity of pulp being dipped up and shaken with a peculiar motion acquired by experience, the fibre is spread evenly over the wires and the water in great part flows through. The vatman then slips off and retains the deckle as he slides the mould along the edges of the vat to another workman called the coucher, and taking another mould to which he adjusts the deckle, he repeats the operation. The coucher meantime sets the mould on its edge to drain while he arranges on the table close by a sheet of felt cloth on which he lays the sheet of fibre by overturning the mould. This is returned to the vatman, who passes along another mould and sheet, and this is laid upon another felt with which the first sheet is covered. About 130 sheets are thus piled up alternately with as many felts, and the whole pile is then slipped under a press, by the action of which much water is squeezed out and the sheets acquire tenacity. These are then separated and piled up by themselves, and again pressed; and being again separated, or parted, they are piled and pressed a third time. Thus the marks of the felts are removed, and the paper is in good condition for drying, which is effected by hanging the sheets on hair lines in lofts or rooms specially devoted to this purpose. In favorable weather the drying may be completed in 24 hours, after which the paper is sized by dipping it several times in a preparation of glue and alum. The sheets are again pressed to remove the superfluous size, and are returned to the drying rooms, where they are suspended upon the lines and dried much more gradually than before, several days' time being requisite for the size to become well incorporated with the paper. The finishing is effected by passing the sheets laid alternately with glazed paper boards with some hot metal plates interspersed through the piles. This gives the name of "hot-pressed." It may instead be rolled with smooth copper plates between the sheets. By this method it was often 3 weeks before the paper was finally finished from the first treatment of the rags, and for every vat, from which about 150 lbs. of paper might be made in a day, there were employed 8 men and about as many women. The "water mark" upon paper, used to designate the peculiar kinds, is produced by coarse wires of the required figures attached to the moulds, so as to cause the layer of fibre to be somewhat thinner on their lines. Various devices formerly made use of in this way gave names to the sorts of paper to which they were applied, and the papers have retained these names. Thus "cap" or

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* With the wires thus arranged, the paper produced is called "laid paper;" but with a woven-wire cloth the product is known as "wove paper."

"foolscap paper" was so called from the water mark representing a fool's cap and bells; post paper, from the design of a postman's horn. What was called "pot paper" had the design of a pot or jug, and "hand paper" was distinguished by the figure of a hand. Water marks upon commercial papers, as bank notes, checks, &c., serve a useful purpose in rendering forgeries more difficult.—The Fourdrinier machine introduced extraordinary improvements over the old hand method of making paper. By means of it the capacity of production is immensely multiplied at greatly reduced cost. Paper is made in sheets of any desired size and of uniform thickness. Light tissue papers are produced by it which could not have been made by hand. The processes of sorting, trimming, and hanging up the sheets to dry, and the waste attending these handlings of the paper, are avoided; and what required weeks to effect is now accomplished in as many minutes. The cast-off rags of the poorest of the poor, as stated by Richard Herring in his "Paper and Paper Making" (London, 1856), may be forwarded after sunrise many miles, and be returned before sunset converted into sheets of the most perfect paper. But this wonderful rapidity in the manufacture is unfavorable to the production of paper of the greatest strength and durability. This is attained only by conducting each one of the numerous processes, from the trituration of the rags to the calendering, slowly and thoroughly. Mr. Herring exhibits among the samples in his work one specimen of paper thus carefully prepared, not much thicker than ordinary printing paper, which is almost as tough and durable as parchment, and capable of sustaining by a strip not wider than a bank note a weight of 200 lbs. It is impossible to convey a clear idea of the machine without drawings. At its head is placed a receiving vat into which the pulp is constantly supplied, and in which it is kept of uniform consistency by continual stirring. From the vat it flows out through a stopcock regulated to supply the quantity suited to the thickness of paper to be made; or the delivery is controlled either by pumps or by pulp meters contrived to supply equal quantities in equal times. Flowing then upon a lifter wheel, the pulp is diluted with water drained from the web of paper in advance of this part of the apparatus and brought back to the lifter wheel. By this wheel the mixture is delivered into the trough called the sand trap, which is 20 to 40 feet long and 4 or 5 inches deep. In this any particles of sand present settle, and the pulp passes through the strainer, which is arranged along one side of the trough. This is a box made of brass plates, those forming the bottom being perforated by fine slits, or the bottom is made of polished bars of brass, which are set almost in contact. The passage of the pulp through the narrow openings is facilitated either by a rapid jarring movement communicated to the strainer, or by an exhaust apparatus kept in operation beneath it. Knots, and any foreign hard substances that may be present, are caught on the strainer. Formerly such matters were picked out from the paper by hand while it was undergoing the drying process; this caused much damage to the sheets, and the knobby points that escaped notice seriously injured the paper, especially for the use of engravers. The pulp flows from the strainer into a vat which is as long as the width of the sheet to be produced, and along the whole length of one side of this vat it passes out over an apron upon the "wire"—an endless web of wire cloth, having from 3,500 to 5,000 holes to the square inch. It is supported by rollers, upon which it is carried constantly round at the rate of 25 to 60 or 70 feet per minute. The upper surface upon which the pulp is delivered is perfectly level, and may be 15 feet in length. A lateral jarring motion is communicated to the web, which shakes the fibres of the pulp together, and the water with some fibre that passing through is caught in the "save-all" trough and returned to the lifter wheel. The width the pulp occupies on the wire is controlled by flexible straps or deckles, one on each side, which, being adjusted to the width of the paper to be made, move along with the upper surface of the wire and return above it by an independent set of rollers. These deckles are made of several layers of linen or cotton gummed, or of vulcanized rubber. The sheet of pulp as it becomes freed from water acquires consistency, and this is increased by the weight of a cylinder under which it passes, called the dandy roll. The friction causes this roll to revolve, and any designs for water mark or lines made of fine wire and sewed upon its surface are transferred to the sheet. For making laid paper the wires are laid longitudinally and very close together. The impressions are made more permanent through the action of suction boxes placed under the web at this point, which suddenly extract much of the water in the pulp and give to the sheet consistency enough to admit of its retaining the marks impressed upon it. Passing the suction boxes, the web reaches the couch rolls. These are rollers covered with felt, the under one carrying the wire, and the upper directly over it pressing down upon the web of paper and wire. The wire cloth going round the lower roller and passing beneath the save-all trough on its return to the supply trough, the web now leaves it, being taken on the surface of an endless blanket or felt, when, still in a very wet state, it is passed, with the felt on which it is supported, between a pair of heavy cast iron or brass rollers, by which it is compressed and freed from most of the water it has retained. In order to remove the impression left by the felt, the web is conducted away from this one and round a roller, having now sufficient tenacity to support itself; and being turned completely over, what was the upper side is received upon another revolving felt, and both are carried between another pair of press rolls, the face of the upper one coming in direct contact with that surface of the paper which before rested upon the felt. The sheet goes next upon the drying cylinders. These are hollow, made of cast iron, and are heated by steam introduced into their interior. Their number and arrangement vary at the different mills, some employing as many as 20 of them. The first which receives the paper is moderately warm, and the heat increases with each one. By thus gradually drying the paper, it acquires greater strength than it would have if passed over a few hot cylinders. From these cylinders the sheet is wound directly upon a reel, or it may be passed through several sets of calender rolls by which its surface is smoothed and finished. The sizing for printing paper is usually produced by mixing the materials in the pulp as already described; but the finest writing papers are now sized almost altogether in the web, this being passed through a solution of gelatine and alum kept at a temperature of about 100° F., and dried immediately by running it over a series of open-work drums, through the centre of each of which a revolving fan creates a rapid movement of the air against the paper, causing, in a temperature kept at about 80°, a rapid drying. The old-fashioned way of drying writing papers in the loft is not abandoned in many of the best mills. The sheets are cut off for this purpose immediately after sizing. Paper thus dried is stronger, the straining effect of drying upon machines being avoided. The sheet is usually made about 54 inches wide, and it is run off by the machine at the rate it may be of 600 yards an hour, or a mile every 3 hours. It is cut into small sheets by different contrivances, applied to the paper either as it comes from the machine, or as it is wound off from the reels. It is cut lengthwise by pairs of circular knives, which revolve, one knife below and a larger one above the sheet, as it moves between them, and their cutting action is like that of scissors. To cut it across, two knives, one fixed and one movable, are made to work together like scissors blades at the instant when the right length of paper is brought forward by a drum and held fast by two long blocks being brought together and pressing the paper between them. The drum at the same instant retrogrades to take forward the length for the next sheet. The slack of the web, which is necessary in this interrupted movement, is kept up by what is called a dancing roll. The glazed surface given to the highly finished writing papers is produced by rolling the sheets placed in a pile with polished sheets of copper, with which they alternate. The operation is repeated many times to produce the best effect. Beside the cost of the process in the extra labor, a considerable loss is incurred by unavoidable damage to more or less of the paper, and by bringing strongly out defects which would escape notice in ordinary paper.—The varieties of paper are numerous. They may be classed in general as writing (including drawing), printing, and wrapping; and beside these are the filtering and blotting papers, which differ from the other kinds in an admixture of woollen rags, by which the product is rendered absorbent. Cartridge paper is a thick variety of white paper used for making cartridges. Bank note paper is a very strong, flexible, and thin paper, made of the best linen rags; and tissue paper is a thin transparent paper used chiefly for tracing drawings, &c. The distinctions of the varieties of writing paper are based on the paper being wove or laid, and on the shades of color and degree of finish. The cream laid and cream wove are of a slightly yellowish white, and are now regarded as the choicest varieties. Papers of a bluish tint are prepared by mixing ultramarine with the pulp. A very small amount of ultramarine counteracts the natural yellow color, and produces the nearest approach to white. The light buff color is produced by oxide of iron of a low degree of oxidation, and paper of this shade has been recommended as more grateful to the eye than the glaring surface of the white varieties. As it is in reading and writing that injury most frequently comes to the eye, this suggestion seems not to have received the consideration it merits.—The trade names of the different sorts of paper designate the different sizes furnished from the mills. The smaller sheets of letter and note paper are prepared from the commercial sheets by the stationers. The smallest sheets furnished by the mills, termed pot paper, measure 12½ by 15 inches; foolscap, the next size, 13½ by 17; post, 15¼ by 18¾; copy, 16 by 20; large post, 16½ by 20¾; medium post, 18 by 23; sheet and third foolscap, 13¼ by 23; sheet and half foolscap, 13¼ by 24½; double foolscap, 17 by 27; double pot, 25 by 30; double post, 19 by 30½; double crown, 20 by 30; double medium, 24 by 38; demy, 15½ by 20; ditto printing, 17¾ by 22½; medium, 17½ by 22; ditto printing, 18½ by 23; royal, 19 by 24; ditto printing, 20 by 25; superroyal, 19 by 27; ditto printing, 21 by 27; imperial, 22 by 30; elephant, 23 by 28; atlas, 26 by 34; columbier, 23½ by 34½; double elephant, 26¾ by 40; antiquarian, 31 by 53.—Beside the uses of paper already referred to, it is extensively applied to the production of pasteboard, paper boxes, paper hangings, sheathing for vessels, the outside covers of books, &c.

PAPER HANGINGS. See WALL PAPER.

PAPHLAGONIA, in ancient geography, a country in the N. of Asia Minor. According to the legendary account, the name was derived from Paphlagon, the son of Phineus. It was bounded N. by the Euxine sea; E. by Pontus, from which it was separated by the river Halys (the modern Kizil Irmak); S. by Galatia, separated by the Olgassys (now Ulgaz) mountains; and W. by Bithynia, separated by the river Parthenius (now the Bartan-su). The boundaries however varied at different periods. The chief city was Sinope, situated on the coast and founded by a Greek colony. Beside this, there were Cytorus and Amastris on the Euxine, and Pompeiopolis and Gangra in the interior. With the exception of the Halys and Parthenius, and the Amnias (Kara-su), a tributary of the Halys, there are no rivers of importance. The Olgassys mountains in the centre, an extension of the chain running from Armenia to the Hellespont, send up to the northern part of the country numerous branches. Generally the surface is mountainous and rugged, but more especially in the southern portion, the northern containing many wide and fertile valleys, not inferior to the rest of Asia Minor in productiveness. Paphlagonia was celebrated for its horses, being spoken of on this account as early as the days of Homer. It also produced mules and antelopes, and in some parts sheep breeding was a common business, while the vast forests in the south afforded an ample supply of timber. A kind of red ochre was also obtained from a mountain called Sandaracurgium in the neighborhood of Pompeiopolis. The Paphlagonians appear to have been a Syrian race, and are spoken of as a rude and superstitious people. The chase was a favorite pursuit in peace, and their cavalry was celebrated in war. According to Herodotus (vii. 72), their armor consisted of a plaited helmet, small shields, and spears, javelins, and daggers.—Paphlagonia was originally governed by native princes, but was made a part of the Lydian dominions by Crœsus; and after the conquest of the Lydian kingdom by Cyrus, it formed a portion of the third satrapy of the Persian empire. Yet various satraps made themselves independent kings of that country. After the death of Alexander, Paphlagonia fell into the hands of Eumenes, but after his fall was again independent until it became a portion of the dominions of Mithridates, king of Pontus. When the Romans had conquered that monarch, they united the coast districts with Bithynia, and subsequently embraced all of the country under their rule. In this condition it constituted a portion of the province of Galatia, and so remained until the time of Constantine, when it was erected into a separate province. Paphlagonia is now a part of the Turkish empire, and is included in the eyalet of Kastamuni.

PAPHOS, the name of two ancient towns, situated in the S. W. part of Cyprus, one of which was called Old Paphos, the other New Paphos, the former being the one denoted usually by the poets, the latter the one denoted by the prose writers; but as the same term was applied to both indiscriminately, much confusion has been the consequence. Old Paphos, the seat of the worship of Venus, and the place where, according to fable, she landed after having risen out of the sea, was situated about 1½ m. from the shore, and owes its legendary foundation to Cinyras, the father of Adonis. Here was the peculiar seat of the goddess; here her worship was early established, the grove and temple of Venus being mentioned in the Odyssey. The huge foundations of the latter are still visible. New Paphos, the modern Baffa, was situated between 7 and 9 m. N. W. of the old city, and was founded, according to the legend, by Agapenor, chief of the Arcadians at the siege of Troy, who was driven by the storm which separated the Greeks into its harbor. It was also remarkable for the worship paid to Venus, although it never rivalled in this respect the ancient city. It was here that St. Paul struck Elymas the sorcerer with blindness, and from the account in Acts the town would appear to have been the residence of the Roman governor.

PAPIAS, an early Christian writer, bishop of Hierapolis in Phrygia. Irenæus calls him a "hearer of John and a companion of Polycarp;" and it has been disputed whether the John referred to was the evangelist or the elder, who belonged to the church at Ephesus. He wrote a work in 5 books, entitled "Explication of the Speeches of the Lord," of which only a few fragments have been preserved. He was a millenarian in belief, and entertained the idea that there will be for 1,000 years after the resurrection from the dead a bodily reign of Christ on earth; and from him millenarians were sometimes called Papianists. According to the Alexandrian chronicle, he suffered martyrdom in Pergamus in A. D. 163, and Feb. 23 has been set apart by the Roman Catholic church for his commemoration. The best collection of the fragments of his writings is to be found in the *Reliquiæ Sacræ* of Routh (8vo., Oxford, 1814). According to Eusebius, he was a man "of small understanding," as appeared from his works.

PAPIER MACHÉ, the pulp of paper mixed with glue or gum arabic, moulded and dried, or paper pasted in sheets upon models. The cheaper articles of papier maché are made of white or brown paper mashed in water and pressed in oiled moulds. The better articles are produced by pasting or glueing together sheets of paper, which, when a proper degree of thickness is attained, are powerfully pressed and dried. While moist the preparation may be moulded into any required form, and when dry it may be planed and rasped to shape. Several coats of varnish are next applied, and the inequalities are rubbed down with pumice stone. It is ornamented with gold, bronze powder, or colors, when a varnish of shellac is applied, dried at a temperature of 280°, and a brilliant surface is obtained by polishing with rotten stone and oil, and by hand rubbing. For architectural ornaments, the sheets of paper prepared in layers with glue are pressed into metal moulds of the required form. When removed, a composition of paper pulp mixed with rosin and glue is put into the moulds, and the paper impressions being again inserted, the composition adheres to them permanently. *Carton-pierre* ornaments are similarly prepared, whiting being used in place of rosin, and are lighter and more durable than plaster of Paris. Papier maché is rendered to a great extent waterproof by mixing with the pulp a preparation of sulphate of iron and glue, and nearly fire-proof by adding to this borax and phosphate of soda. A "Treatise on the Decorative Use of Papier Maché" was published by Bielefeld (London, 1840).

PAPIN, Denis, a French physicist and machinist, born in Blois in 1647, died in Germany about 1710. He received the degree of M.D. at Paris, and practised medicine there for some time; but having turned his attention to mechanics, he became the assistant of Huyghens, who had been attracted to France by the liberality of Louis XIV. He visited England in 1680, helped Boyle in several of his experiments, and was elected a fellow of the royal society. It was probably during his stay there that he prepared his *Dissertation sur la manière d'amollir les os, et de faire cuire toutes sortes de viandes en fort peu de temps et à peu de frais, avec la description de la machine* (Paris, 1682). In this work he explained his *digesteur* or *marmite*, a contrivance for softening bones, with which until lately his name has been chiefly associated; but recent investigations have shown that Papin has a better claim to celebrity as a forerunner of Watt and Fulton. Having removed to Germany on account of the persecution to which he was exposed in France as a Protestant, he was appointed in 1687 professor of mathematics in the university of Marburg, and there devoted his leisure to researches upon the use of steam. As early as 1690 he published the results of his labors in the *Acta Eruditorum* of Leipsic, proposing steam as a universal motive power, and describing a steam engine and even a rude paddle steamer. It appears from documents discovered by Prof. Kuhlmann in 1852 in the public library at Hanover, that in 1707 he had a vessel built in conformity with his invention, and tried it on the Fulda. His last published work was a Latin "Essay upon a new System for raising Water by the Action of Fire" (Frankfort, 1707).

PAPINEAU, Louis Joseph, a Canadian political leader, born near Montreal in 1787. His father, who was a notary public and held a seat in the first legislative assembly of Lower Canada after the establishment of the constitution of 1791, had him educated at Quebec with great care. He studied law and was admitted to the bar, but never practised. At the age of 22 he entered the Canadian parliament, succeeded his father in 1814 as one of the deputies of Montreal, and in 1815 was elected to the speakership of the house. He had already taken the lead of the radical party, and in order to neutralize his growing influence, Lord Dalhousie, when governor-general of Canada, appointed him one of the executive council; but he never appeared at any of its sittings, and continued his opposition to the government. In 1823, when the English party aimed at the union of the two provinces of Canada, Papineau, in conjunction with Neilson, was sent on a mission to London to remonstrate against that measure. In 1827 he was reëlected to the house and rechosen speaker. Rather than sanction this choice, Lord Dalhousie adjourned the parliament, and it was not until 1828, when Sir James Kempt had succeeded to the governorship, that Papineau could take his seat. He now assumed an attitude of defiance toward the imperial government, which, however distasteful to some of his former adherents, was upheld by a majority of the people in Lower Canada. He prepared a list of the demands and grievances of his countrymen, which was introduced to the house in 1834 by M. Bédard, and known afterward as the 92 resolutions. He supported them energetically in the house, and at the close of the session went through the country urging a constitutional resistance to the imperial government, and recommending commercial non-intercourse with England as a means of bringing her to terms. He advised the colonists not to vote subsidies for more than 6 months, and this measure was carried out in the session of 1836; but the new governor, Lord Gosford, vetoed it, and decided upon administering the province without the assistance of the colonial parliament. This brought matters to a crisis. While the other provinces were conciliated by concessions and favors, Lower Canada was threatened with harsh measures; and this was seized upon by Papineau as a favorable opportunity to give a new impulse to agitation. He spoke with great effect in many of the parishes, and in several of them the governor was burned in effigy. The sudden prorogation of the colonial parliament added fuel to the fire, and the liberal party took up arms. This however Papineau did not approve, and in a great popular meeting, Oct. 23, 1837, he tried to bring his party to more sober resolutions, insisting that constitutional and peaceful resistance would alone be of avail to Canada. His advice was not heeded, and the final result of the meeting was a flaming "Appeal to the People." Thus reluctantly carried far beyond his anticipations, he remained among the rebels, although taking no active share in their military operations. A warrant for his arrest had been issued on a charge of high treason. After the engagements of St. Denis, St. Charles, and St. Eustache, in November and December, 1837, had demonstrated the futility of armed resistance, he took refuge in the United States, and afterward repaired to France, where he lived for several years, engaged in literary pursuits. After the passing of the bill for the union of the two Canadas in 1840, a general amnesty for political offences was granted by the home government, and he was allowed to return to his native country. His popularity was still strong enough to secure his election to the Canadian parliament; but he has since taken no prominent part in political affairs.

PAPINIANUS, Æmilius, a Roman jurist, born about A. D. 170, put to death in 212.

He succeeded Septimius Severus as *advocatus fisci*, and, when his predecessor in that office became emperor, was appointed by him *libellorum magister*, and subsequently *præfectus prætorio*. It is probable that he accompanied Severus in his expedition to Britain, and the emperor on his deathbed is said to have commended his sons to his care. But in the second year of the reign of Caracalla, he was beheaded by order and in the presence of that tyrant. Papinian was one of the most eminent of the Roman jurists. Among his scholars were Ulpian, Paulus, Pomponius, Africanus, Florentinus, Modestinus, and others; and in the Digests are 595 extracts from his works. So high an opinion was entertained of his merits, that Cujas, the great French interpreter of civil law, declared that Papinian was the first of all lawyers who have been or are to be, that no one ever surpassed him in legal knowledge, and that no one will ever equal him.

PAPIRIUS, Justus, a Roman jurist, who lived in the time of the Antonines, and compiled 20 books of constitutions. In the Digest there are 16 fragments from the first 8 books of this work. The constitutions are all rescripts of the Antonines, either of Marcus alone, or of Marcus and Verus jointly. Nothing is known of the collector save that he must have lived in the time specified, as the Antonines are named without the epithet Divus.

PAPIRIUS, Sextus, or Publius, the supposed collector of the old *Leges Curiatæ*, or *Leges Regiæ*, which were enacted at Rome during the reign of the kings. He is said to have been pontifex maximus, and to have lived under Tarquinius Superbus. The collection is mentioned under the name of *Jus Civile Papirianum*, and sometimes *Lex Papiria*, not because he contributed any thing, but because he arranged the laws in their order. Although much has been written in regard to this compilation, nothing certain is known. The few and doubtful fragments still extant are contained in Hoffmann, *Historia Juris Romano-Justinianei*, vol. ii. p. 1 (Leipsic, 1726).

PAPPENHEIM, Gottfried Heinrich von, count, an imperial general in the 30 years' war, born May 29, 1594, killed at the battle of Lützen, Nov. 16, 1632. Descended from a noble and ancient family, he received a liberal education at Altdorf and Tübingen, and travelled over various countries of Europe. The military spirit of the times and his fiery zeal for the Roman Catholic faith led him soon to adopt the profession of arms, and he became a captain of cavalry in the regiment of his stepfather, the count of Herberstorff. At Lintz he joined the Bavarian army, and soon became lieutenant-colonel. At the battle of Prague, in 1620, he received 20 wounds, and was left for dead on the field, until discovered by his own men returning from the plunder of the enemy. In 1623 the emperor appointed him commander of a regiment of cuirassiers, which became celebrated under the name of Pappenheimers. He fought in Lombardy until 1625, when he was recalled to put down an insurrection of Protestant peasants in Upper Austria, who had resorted to arms to defend their faith. This rebellion, in which 40,000 peasants perished, he crushed in the space of a month; the history of it he himself wrote. Afterward he assisted Tilly in his campaign in northern Germany against Christian IV. of Denmark, and bore a leading part in the storming of Magdeburg (May, 1631). In the sack of this city his troops acted with the most terrible ferocity. In the defeat which his commander suffered at Leipsic, Pappenheim received 7 wounds, and owed his life to a peasant. After the death of Tilly he joined Wallenstein, and in the battle of Lützen received a mortal wound; but hearing that Gustavus Adolphus had also fallen, he exclaimed: "Let the duke of Friedland (Wallenstein) know that I am mortally wounded; but I depart with joy, as I know that the implacable enemy of my faith has fallen with me on the same day." Pappenheim was especially distinguished for his daring and his fiery courage; but these qualities, which made him invaluable in a subordinate position, rendered him unfit for holding responsible commands.

PAPPUS, Alexandrinus, a Greek geometer, who flourished, according to Suidas, in the latter part of the 4th century of our era; by some modern critics he has been placed in the latter half of the 2d century. Nothing is known of his personal history. He wrote several works, all of which have perished except the "Mathematical Collections," of which the last 6 out of 8 books are now extant. The first 2 it has been conjectured were taken up with the science of arithmetic; the 3d treats of linear and solid geometrical problems; the 4th of various propositions in pure geometry; the 5th of isoperimetrical figures; the 6th of the geometry of the sphere; the 7th of ancient analysis; and the 8th of mechanics. The lost works of Pappus are a "Commentary upon Ptolemy's Almagest," a "Universal Chorography," a "Description of the Rivers of Libya," and a treatise on the interpretation of dreams. There is no edition of the Greek text of the "Mathematical Collections," but two have been printed of the Latin version by Commandine (Pisauri, 1588 and 1602); a portion of the Greek text of the 2d book (wanting in Commandine's MS.) was printed by Dr. Wallis (London, 1688).

PAPUA. See New Guinea.

PAPYRUS, a genus of plants belonging to the natural order *cyperaceæ*, or sedge family—plants that frequent marshy places, and some of which are aquatic. The common bulrush, the pith of which is used by the poorer classes of England as a substitute for candle wicks, and the troublesome nut grass of the southern states, are familiar examples of this order. The papyrus plant, which was used by the ancient Egyptians for making their paper, is the *cyperus papyrus*, or *papyrus antiquorum* of some botanists. It grows on the marshy banks of rivers in Abyssinia, Syria, and Sicily, and formerly abounded on the banks of the Nile; but it is questionable whether the plant now exists in Egypt. According to Sir Gardner Wilkinson ("Ancient Egyptians," vol. ii. pp. 97 and 100), it would seem to have disappeared there entirely; and, as he states, the remarkable prophecy of Isaiah (xix. 7) has come to pass: "The paper reeds by the brooks, by the mouth of the brooks, ... shall wither, be driven away, and be no more." Its names however are perpetuated, one in the Bible or Book, so called from *byblus*, and the other, *papyrus*, in paper. The papyrus plant has a triangular smooth stem, from 5 to 25 feet high, bearing long grassy leaves springing from near the ground. The flowers form small flattened spikes, of 6 to 8 flowers each, which are clustered in great numbers, 300 to 400, in a compound head, 15 to 20 inches long, supported at its base by a many-leaved involucre. The cultivation of the plant received great attention in Egypt, where it was in ancient times highly valued, not merely for the manufacture of paper, but also as a medicine, being applied to the cure of fistulas and ulcers. It was also made into torches and candles, boats, sails, ropes, mats, garments, coverlets, shoes for the priests, &c.; and the roots, which grow as large as a man's arm, were used as fuel, and for making cups and other utensils. The head with its grass-like filaments was used to crown the statues of the gods and adorn the temples in Egypt. Pliny, who gives the chief part of this account, also states that the plant was used as food, being chewed raw, boiled, or roasted, and the sweet juice only being swallowed. The method of preparing the paper, according to the same authority, consisted in dividing the stem (probably the inner cuticle) by means of a kind of needle into thin plates or laminæ, each as large as the plant would admit. These were placed upon a table, which was continually moistened with Nile water, to which Pliny attributed a peculiar slimy or adhesive quality, that specially adapted it for this use, a virtue more probably however derived from the plant itself. A layer of the papyrus being spread over the table the whole length of the slips, it was overlaid by another placed transversely, and these were afterward subjected to pressure. The sheets thus formed were then hung in the sun to dry, and were afterward joined together. A single stem sometimes produced 20 slips. The sheet when made of the desired length was rolled on a wooden roller, the ends of which projecting beyond the papyrus were carefully finished and ornamented with balls. At one time the use of the plants was monopolized by the government, and little could be used for other purposes than for paper, and on account of its scarcity even then only for the most important documents. Paper of papyrus was largely manufactured in Alexandria during several centuries of the Christian era, and was an important article in the commerce of the countries of the Mediterranean. The time of its final disappearance is unknown; but it was gradually going out of use, and paper from cotton and linen taking its place, in the 11th and 12th centuries. In the "American Journal of Science," vol. xxvii. pp. 81, 82, is a description of the papyrus plant as seen by the writer in 1834 on the banks of a small stream near Syracuse in Sicily. For the gratification of the curious, a Syracusan gentleman, Mr. Politi, at that time made and disposed of specimens of papyrus paper, using the pith of the plant; and the writer supposes this is the only portion that could be applied to this use. The outer integument resembles very much that of Indian corn.—When papyrus was first used for paper is unknown. Pliny says, but evidently very incorrectly, after the time of Alexander the Great. It was common in the time of Cheops, the builder of the great pyramid, many centuries before Alexander conquered Egypt. Its use no doubt became more general out of Egypt after the conquest. The material in modern times first came into notice in Europe when the history and antiquities of Egypt were developed by the French expedition. Papyrus rolls have since that time been collected by numerous travellers in Egypt. They were also brought to light among the ruins of Herculaneum. These were Greek manuscripts, unfortunately so injured as to be almost entirely illegible. They were of various textures and colors, and for the most part the sheets were matted together, so that only by the utmost care, patience, and ingenuity, could they be opened and deciphered. Even when the labor was attended with success, the importance of the documents was far from repaying the trouble. Some of the Egyptian papyrus manuscripts are written in Greek, and among these was found a valuable fragment of Homer. The funereal papyri, in hieroglyphic and other characters, seem to have been regarded by the Egyptians as a sort of passport after death to another world, and in the mummy cases they are found deposited about the persons of the occupants. These, though numerous, seem all to be copies with some variations from one original. The historical Egyptian papyri have thrown much light upon the manners and customs of the people, and have elucidated many points of Egyptian chronology and history. The papyri relating to judicial and civil affairs, though less interesting in most of their details, afford some curious information concerning the domestic life of the Egyptians. The most remarkable modern discovery of them has been the recent finding by M. Mariette of 150 papyri in the Serapeum at Memphis, of the greatest value for the civil and religious history of lower Egypt.—The papyrus is alluded to by many ancient writers, as Dioscorides and Theophrastus. Under the name of *βυβλος* or *βιβλος* it is also treated by Herodotus, Strabo, and Lucan. It is probably the rush spoken of by

Job, viii. 11; and it is supposed to have been the material of the "ark of bulrushes daubed with slime and pitch" in which Moses was found.

PARA, a Turkish coin of copper, silver, or mixed metals, very small and light. It is the fortieth part of a piaster, which varies greatly in value owing to the debased and complicated state of the Turkish coinage, but may be rated at about 4 cents of U. S. money; the para will therefore be worth 1 mill.

PARA, or Grão Para, a province of Brazil, bounded N. by Guiana and the Atlantic ocean, E. by the provinces of Maranhão and Goyaz, S. by Matto Grosso, and W. by Alto Amazonas; extreme length 1,800 m., breadth 950 m.; area, 582,000 sq. m.; pop. in 1856, 207,400. The Amazon flows through Para in an easterly direction, and receives several tributaries of great size; the most important are the Tocantins, Chingua, Tapajos, and Madeira, the last of which forms the W. boundary line of the province for more than 500 m. The country rises gradually from both sides of the Amazon, and becomes mountainous on the frontier next Guiana, but in the opposite direction it does not reach any great elevation. The general features of the province may be described as immense plains intersected by great rivers. The tracts lying between the rivers are generally covered with primeval forests; but in places there are vast alluvial plains covered with rich verdure. The climate is warm, but not unhealthy. Gold, quicksilver, iron, diamonds, copper, coal, and salt are all found, but hitherto they have been much neglected. Much of the timber is of excellent quality; and some of the shrubs and plants which grow spontaneously are very valuable. But little of the surface has been brought under cultivation, and the principal crops raised are mandioc, rice, millet, coffee, cotton, and sugar cane.—The capital, Para, or Belem, is situated on the river Guama, which flows into the estuary of Para, about 70 m. from the Atlantic, in lat. 1° 34′ S., long. 48° 50′ W.; pop. 28,000, about ¼ of whom are slaves. The streets are well laid out and paved. The houses are not generally high, but they are substantially and some of them elegantly built. There are a handsome cathedral and several churches, a governor's palace, a college, schools, hospitals, a botanic garden, a theatre, and a law court. The anchorage is safe and roomy, and, with the exception of two shoals at the entrance of the river, is easy of access. The approach to the town is commanded by a small fort. The principal exports consist of cocoa, India rubber, rice, nuts, and hides. In 1856, 4,796,829 lbs. of India rubber were exported. The total value of the exports during the year 1858–'9 was $1,950,048, 42 per cent. of which was shipped to the United States. The imports from the United States for the same year were valued at $542,379, and consisted of manufactured articles, lumber, flour, &c.

PARA, a name formerly applied to the Amazon, but which is now restricted to the arm of that river which is separated from the mouth of the Amazon proper by Navajo or Joannes island. It is about 200 m. long, and the breadth varies from 40 m. at its mouth to 12 m. at its head, where it receives the river Anapu. The Tocantins is by far the largest and most important river which flows into it. At spring tides the bore rushes in with great force in a wave 15 feet high.

PARABLE (Gr. παραβολη, a comparison), a narration in which something is implied bearing a similitude to what is told. In the Bible the word is sometimes used as synonymous with a comparison, proverb, or sententious manner of speaking. The prophets of the Old Testament frequently spoke in parables. It was by a parable that Nathan reproached David, and Jesus Christ generally taught in the same manner.

PARABOLA, one of the conic sections, a curve formed by the intersection of a plane with a right cone having a circular base, the plane being parallel to one of the sides of the cone. The axis is the line drawn from the vertex dividing the figure into 2 equal and symmetrical parts; as the curve does not return upon itself, this line is infinite. This is the curve astronomers employ to represent the paths of comets, though these bodies probably move not in a parabola, but in a very eccentric ellipse.

PARACELSUS (Philippus Aureolus Theophrastus Bombastus von Hohenheim), a Swiss alchemist and empiric, born at Einsiedeln near Zürich in 1493, died in Saltzburg, Sept. 23, 1541. He was the son of a physician, and received an irregular education, the defects of which he managed to conceal or supply by his remarkable self-possession and assurance and ceaseless curiosity. Having made himself master of the arts of conjuring, juggling, and alchemy, he travelled on foot through the principal cities of Europe, picking up scraps of knowledge and acquiring the rudiments of chemistry and medicine. He visited Constantinople in the suite of a Tartar prince to learn from a Greek the secret of the elixir of Trismegistus, and, having become acquainted with some remedies not in common use among the faculty, returned to Switzerland, where he performed several remarkable cures. On the recommendation of Œcolampadius, he was appointed professor of physic and surgery in the university of Basel in 1526. He proclaimed himself the sole monarch of physic, publicly burned the works of Galen and Avicenna, and professed to know the art of prolonging life and curing all diseases, and to hold more learning in the hairs of his beard than was possessed by all the universities and medical writers united. To the four elements of Aristotle he opposed the three compound principles of salt, sulphur, and mercury. The soul, according to him, was united to the body by an animal fluid. Man was an image of the Trinity, his intellect representing God, his body the world, and the fluid the stars. He recognized a mysterious harmony between the body and the earth and salt, between the soul and water and mercury, and between the intellect and the air and sulphur. His lectures were delivered, not as was usual in Latin, but in the vulgar tongue, and attracted at first very large audiences. Erasmus consulted him for the stone, and the correspondence between the quack and the philosopher has been preserved. In his personal habits as well as his language, Paracelsus affected oddity. He slept in his clothes. He spent his nights carousing in low taverns. He rarely lectured that he was not drunk; he was drunk when he visited his patients, and drunk when he wrote his books. After the first year his lectures were deserted. At last, about the end of 1527, he was compelled to leave Basel on account of having abused a magistrate, and after wandering through Germany for several years obtained a temporary success in Moravia. The death of some of his most illustrious patients soon compromised him here, and he next visited successively Vienna, Villach, Mindelheim, and Saltzburg, where he closed his life in abject poverty. He published a few works, and left in manuscript a number of others, which were printed after his death. There are several collected editions of his writings, one of the latest of which is in Latin in 3 vols. fol. (Geneva, 1658). With all his absurdities, he taught some true principles with regard to the uses of opium, mercury, sulphur, antimony, and arsenic, and was the first to introduce chemical remedies into the pharmacopœia.

PARACHUTE. See Balloon.

PARADISE (Sans. *pardeesha*; Heb. *pardes*; Armenian, *pardez*; Arab. *firdaus*; Gr. παραδεισος), literally, a garden or pleasure ground planted with trees and flowers, whence the term is used metaphorically to express the abstract idea of perfect felicity and heavenly blessedness. In the Septuagint it is employed to express the Hebrew "garden of Eden." (See Eden.) Another metaphorical use of the word is to express the happiness of the righteous in a future state, an application adopted by the later Jews, and the general idea of which is to be found in the mythologies of various races. The mediæval rabbinical literature contains fanciful descriptions of an earthly and a heavenly paradise, the latter, which excels the former "as much as darkness does light," being reserved for the final abode of the souls of the blessed. Each of them contains seven divisions or chambers, and each of these chambers extends 120,000 miles on every side. A column ascends from the terrestrial to the celestial paradise for the convenience of the souls of the blessed who are entitled to ascend thither, and a wall of partition separates the whole from hell. The location of the terrestrial paradise is somewhere under the equator. The celestial paradise is generally regarded as identical with heaven, or the place of future bliss according to the Christian dispensation; but biblical critics have differed as to the signification to be given to the term in Luke xxiii. 43, where Christ says to the penitent thief: "To-day shalt thou be with me in paradise;" some considering the existence of a distinct abode for the reception of the blessed previous to the last judgment to be indicated, while others have found a stumbling block in the statement elsewhere made in Scripture that between his death and resurrection the Saviour descended into hell. The paradise of the Mohammedans, termed in the Koran Gannah, or the happy gardens, is a place of infinite sensual delights conceived with all the warmth of oriental fancy, where devout followers of the prophet are received after death.

PARADISE, Bird of. See Bird of Paradise.

PARADOX, Mechanical. See Gyroscope, vol. viii. p. 618.

PARAFFINE (Lat. *parum affinis*, having little affinity for other bodies), one of the hydrocarbons discovered in 1830 by Reichenbach as products of the destructive distillation of organic bodies. He found it first in wood tar, and also separated it in the treatment of flesh and of the coal oils. Christison of Edinburgh, not knowing of Reichenbach's discovery, found it in 1831 in Rangoon petroleum, and named it petroline. In its appearance and properties it resembles spermaceti and white wax. It is of crystalline texture, solid at ordinary temperatures, and melting when pure at 130° F.; if at 110°, as commonly represented, it is not freed from the oil associated with it. On melting it forms a transparent, colorless, oleaginous fluid, which by increase of temperature first boils, and then evaporates in white vapors, leaving no residue, unless the heat is insufficient to decompose it. In the fluid condition it is absorbed by a wick, and burns like spermaceti. At ordinary temperatures it does not produce spots, as grease does, upon other substances. Its density is 0.87. Paraffine is remarkable for its indisposition to unite with other bodies, and for its power of resisting their action. The acids and alkalies, the latter even in a caustic state, have no effect upon it, nor does it mix when melted with sulphur, phosphorus, &c. With substances, however, which it most nearly resembles, as spermaceti, wax, stearine, and others, it mixes freely; and it is dissolved by many of the vegetable oils and by ether. Alcohol when cold dissolves very little of it, and this is precipitated by adding water; boiling absolute alcohol takes up about 3.45 per cent. of it. Its natural solvents are the hydrocarbon oils which are obtained with it by the distillation of bituminous substances, or which form with the paraffine the natural rock oil or petroleum. For the method of obtaining it, see Petroleum. It is obtained in larger proportion from the oils of the Boghead cannel than from the heavier western oils, natural and extracted from the coals; and it is supposed that some portions of these oils are isomeric with paraffine, but they do not assume its solid consistence.—Paraffine was produced by Selligue in France, and made into candles, which, with other products of the distillation of bituminous substances, were exhibited in the Parisian industrial exhibition of 1839. "The purified mineral wax," as it was called, "was beautifully white, but the candles made of it had a soiled appearance." This appears to have been owing to its tendency to split as it cools, and thus form cracks that radiate from the wick. A mottled or clouded appearance is thus produced, which for some time it was difficult to prevent. Several methods of moulding, however, have been devised by which this difficulty is avoided. By one process, described in the *Technologiste* of 1859, and adopted in the United States, the mould is made in two parts, one for the body of the candle, and the other a short piece for the tip, which has a conical depression for forming the point of the candle. This piece fits in the other like a piston, so that when pushed in it forces the candle out of the other end. The moulds, being brought up to the temperature of boiling water, are filled and immediately plunged into water but little above the freezing point. After remaining about 5 minutes, in which time the paraffine becomes solid next the moulds, they are taken out and kept in a current of cold air for about 20 minutes. These candles are in no respect inferior to spermaceti. Their manufacture is now introduced into several of the mineral oil factories, and must, in view of the very rapid increase of these works in the United States, soon become of great importance. In Europe paraffine has been produced from peat (see PEAT), wood, and other combustible organic substances. But it will not probably be found profitable to extract it from other substances than the natural bitumens.

PARAGUAY, a name formerly denoting a large portion of South America, stretching from the sources of the river Paraguay in the N. to the straits of Magellan in the S., and from the Portuguese captaincy of St. Vincent and the shores of the Atlantic on the E. to the Andes on the W. It is now applied only to the republic of Paraguay, lying in the inland peninsula enclosed by the rivers Paraguay and Parana, between lat. 22° and 27° 40′ S., and long. 54° and 58° 40′ W.; length N. and S. 400 m., breadth from 170 to 210 m.; area about 75,000 sq. m. Its exact northern limit is still undetermined, Paraguay claiming to the N. as far as the river Blanco, and Brazil placing its boundary to the S. as far as the rivers Ipane and Ygatimi. Meanwhile, by the tacit consent of both parties, the generally recognized frontier lies between the disputed lines, and is formed by the rivers Apa or Corrientes, a tributary of the Paraguay, and Yaguarey, a branch of the Parana. It is bounded N. and E. by Brazil, S. by Corrientes, a province of the Argentine Confederation, and W. by the unsettled region known as the Great Chaco, to a portion of which Paraguay lays claim. The republic is divided into 81 *partidos*, or districts, each having a government commissioner at its head. Of these, 56 are inhabited by whites or mestizoes, 23, including 8 Jesuit *pueblos* or missions, by Indians, and 2 by mulattoes. The capital is Assumption or Asuncion, situated on the Paraguay, and having a population of somewhat over 12,000. There are 10 *villas* or towns, which may in a measure be considered as provincial centres. They are Villa Rica, 106 m. S. E. of Assumption, near the head waters of the Tebiquary; Curuguaty, 50 m. N. E. of the capital; San Pedro, on the Jejuy; Rosario, near the mouth of a small stream called the Cuaripoty; Carmen, in the S. near the Parana; Villa del Pilar (formerly Neembucu), Villa Franca, Oliva, Concepcion, and San Salvador, on the Paraguay. The population of these *villas* ranges from 1,000 to 4,000. The total population has been variously estimated, but the most probable computation places it at [illegible], of which scarcely 1,000 are slaves of African descent.—The Paraguay and Parana are a part of the great fluvial system of the river La Plata. The former, which is subject to regular periods of rise and fall, is navigable to a considerable distance beyond the northern confines of Paraguay, and along the line of the republic the depth of the channel is nowhere less than 12 feet at the most unfavorable seasons. The latter is more irregular in its changes, and appears to be easily navigable for river steamers about 200 m. above the point where it is joined by the Paraguay, its upper course being greatly interrupted by rapids and cataracts. The affluents of the Paraguay, on the eastern or Paraguayan side, are the Apa or Corrientes in the N., and then, proceeding S., the Aquidaban or Aquidabanigy, rising in the Sierra de Amambay and flowing N. E. and S. W.; the Ipane, the Jejuy, the Salado, and the Tebiquary in the S. The last is the most important, taking its rise in the elevated plateaus of the E. and affording to vessels of light draft 80 leagues of navigation through a fertile and populous region. The chief Paraguayan tributaries of the Parana are the Amambay, the Ygatimi, and the Yaguarey. The lakes are few and insignificant. The largest is the Ypoa, 15 m. in length, surrounded by an extensive morass, and pouring its waters into the Tebiquary; the next in size is the Ypacarahy, a short distance N. E. of Assumption, about 12 m. in length by 3 in breadth, and discharging its waters, by means of the little river Salado, into the Paraguay. In the low lands numerous extensive *esteros* or marshy jungles exist, of which the estero of Neembucu in the extreme S. E., and that of Aguaracaty in the N., are the best known.—A range of mountains of moderate elevation enters Paraguay at the N., where it is styled the Sierra de Amambay, proceeds southward, and is known in its central and highest portions as the Sierra de Maracayu, and finally terminates near the southern frontier in the lofty hills of Caaguazu.

In lat. 24° it sends off a branch to the E., which, crossing the Parana, forms the cascade of Salto Grande. Between lat. 25° and 26° a lesser branch runs to the W. The average width of the range is about a degree, and it forms a water-shed between the streams which flow on its eastern side into the Parana, and on its western into the Paraguay. Paraguay is to be regarded, to a certain extent, as a transition land between the uneven and mountainous région of Brazil and the vast country of the pampas. The surface is divided between the central and eastern mountains, the wooded, outcropping hills of the sierras, and the *campos quelrados* or undulating plains of the S. E. A line drawn from Assumption on the Paraguay to Encarnacion on the Parana would, with those rivers, form a delta enclosing these fertile plains. They are composed of a ferruginous sand and clay, with vast depressions filled with rich alluvial deposits of a modern date. In many parts their soil derives from the oxide of iron a peculiar tinge, which led the Jesuits to give it the náme of "red earth." The *campos* are interrupted by *lamas*, curious hills of a hemispherical shape, covered with grass. Toward the N. they increase in size and are wooded. The entire geological structure of Paraguay belongs to the tertiary system.—The climate is tropical, but the heat is greatly modified by the peculiar character of the country and other influences. At Assumption the mean annual temperature is about 85°. Rains do not occur periodically as in the countries nearer the equator, nor are the seasons well defined as in more temperate regions. June, July, and August are the coldest months, but even then the mercury rarely falls to the freezing point. The hottest period is in December, January, and February. Hail storms and thunder storms are of very frequent occurrence, but earthquakes are almost unknown. The nights are serene and cool. The *virason* is a refreshing and regular east wind. Another wind, coming from the north-east over the humid plains of the tropics, is hot and heavily charged with moisture; it depresses the spirits, is a frequent cause of disease, and affects both vegetable and animal life. The *pampero* is from the south-east; it comes dry and chill from the pampas, sometimes causing the mercury to fall 18° in a single hour, and its violence often spends itself in hurricanes and tempests, resulting in great destruction of property.—Little attention has been given to the mineral wealth of Paraguay. Gold and silver are said to have been found in small quantities, and an iron mine is profitably worked at Cerro San Miguel. A few saline plains in various parts yield nearly enough salt for home consumption. The vegetable products are of immense value and endless variety. The mountains and hills are covered with forests of trees whose woods, bark, gums, and fruit are used in many of the arts. The commonest genus appears to be the mimosa, but the cedars, palms, laurels, quassia, brignonia, and ilex are widely spread. The *lapacho*, *quebracho*, *tatane*, and *urundey* almost rival the metals in hardness and durability; while the fine and firm fixture of the *morosimo*, *palo amarillo*, and *palo de rosa* peculiarly adapt them to the purposes of the cabinet maker. The fruits of the *arahan*, *nangapare*, *algaroba*, and *yaruma* are pleasant and nutritious. The caoutchouc or *seringar* yields the India rubber gum, and the *palo santo* produces the gum guaiacum. One species of cactus furnishes the food of the cochineal insect. From a parasite, the *guembe*, and from an aloe, the *curuguaty*, ropes and cables are manufactured, exceeding in strength those made of hemp. The varieties of the bamboo are numerous. The flora produces also many important medicinal drugs, as copaiba, rhubarb, sassafras, jalap, sarsaparilla, nux vomica, dragon's blood, and licorice, and many dye stuffs. But the most important vegetable production is the *yerba maté*, or Paraguay tea (*ilex Paraguensis*), which yields the favorite beverage of a large portion of South America. It grows from the vicinity of Rio Janeiro to the base of the Bolivian Andes, but nowhere in greater abundance than in Paraguay, where large quantities are consumed and exported. It is found wild in the extensive *yerbales*, as they are styled, on the hills of the interior, and is gathered and cured by government, or by contractors who have purchased the rights of certain *yerbales* from the president. The plant has the size and appearance of the orange tree, and its clusters of white flowers closely resemble those of our elder. Among the flowering plants, the parasitic orchids and the *mais del agua*, nearly the same as the *Victoria regia*, are the most remarkable. The cultivated plants are the sugar cane, tobacco, mandioca, rice, maize, cotton, indigo, and some of the cereals. The principal indigenous mammalia are the jaguar, cougar, wild boar, deer, ocelot, monkey, tatou, peccary, tapir, aguara, and ant-eater. The rivers and estuaries abound in alligators, capibaras or river hogs, cavies, and otters. Bats are numerous. Boas and one or two very poisonous serpents occur, but the rattlesnake is less common than in Brazil. The ornithology of Paraguay comprises the vulture, which is not now so often seen as formerly, the buzzard, many species of parrots, the American ostrich, the toucan, the partridge, the *pato real* or wild duck, the *bigua bay*, the teal, and numerous songsters. A species of ant deposits nodules of wax upon the twigs of the *guayara blanca*, which are gathered and made into candles. The mosquitoes are a source of great annoyance, and the locusts sometimes devastate large districts. The favorite edible fish are the *pacu*, not unlike our turbot, *dorado*, and *palometa*.—There are no traces in Paraguay either of remote or present volcanic action. Meteoric stones are a phenomenon of not uncommon occurrence. The Salto Grande, or cataract of Guayra, on the Parana in lat. 24°, is the most striking natural curiosity. The river, which above the rapids is over 12,000 feet wide, is suddenly plunged down a narrow gorge of less than 200 feet, through a network of rocky islets. Another cascade of 384 feet in height exists in the north on a branch of the Jejuy.—There are in Paraguay few persons of unmixed Spanish descent, and the Spanish language is confined to the vicinity of the towns. The mestizoes, or persons of mixed Spanish and Indian blood, form the larger part of the population. The common speech of the country is the Guarani, the most extended of all the aboriginal tongues of South America, interspersed with a considerable number of Spanish words. The pure Indian population increases toward the N., and in the N. W. an almost unexplored tract of large extent is inhabited by Caayguas and other independent tribes of the Guaranis. The mulattoes are not numerous, and are made up of the descendants of liberated slaves and of the comparatively small number still held in bondage. The Paraguayans as a class are docile, sedate, and intelligent. They are fond of their country and ignorant of foreign lands and institutions. They are generally moral, crimes of greater enormity than theft being very rare. Physically they are lighter than the mestizoes of other parts of Spanish America, are lithe, active, and industrious, and somewhat exceed in stature the average height of Europeans.—Commerce is carried on almost exclusively through the port of Assumption. The following tables exhibit, as accurately as possible in the absence of regular official statements, the latest statistics of its growth:

IMPORTS AND EXPORTS.

Years.	Imports.	Exports.	Duties.
1854	$585,523	$777,457	....
1855	587,800	811,962	$190,000
1856	686,000	1,144,000	200,000
1857	1,250,000	1,680,000	800,000
1858	1,050,000	1,140,000	284,000

ARRIVALS AND DEPARTURES.

Years.	Entered.		Cleared.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
1856	171	9,923	190	11,877
1857	167	10,292	161	10,080
1858	208	10,126	218	10,225
1859	210	8,445	202	8,205

The principal exports are maté, tobacco, oranges, mandioc (converted into starch and sweetmeats), ground nuts, molasses, and rum. The manufactures are few; they consist chiefly of coarse cotton and woollen fabrics, utensils made of wood and hides, preparations of gums and resinous substances, distillation of liquors from the sugar cane and algaroba, molasses and sugar, and ropes and cordage. The implements of agriculture are rude and primitive. The great land-owners have extensive *estancias*, or estates, upon which, if they are situated in the hilly country, they breed large herds of cattle, and if in the low lands they raise enormous crops of the usual staples. Many of these estancias are owned by government. Between them are interspersed the narrower fields of the small farmers.—Rudimentary schools were established throughout the country by Francia, and have been improved by Lopez. The sole religion permitted is the Roman Catholic; a bishop and a coadjutor bishop reside at the capital. The books published are very few and unimportant. Two journals have a limited circulation, of which one, the *Seminario*, is the government organ. A congressional body meets at irregular intervals in Assumption, but the sessions are short and the legislative business transacted is very insignificant, the entire law-making as well as executive power being in reality vested in the president. The income of the government amounts, as nearly as can be ascertained, to a little over $1,000,000 annually, drawn from an import duty of about 10 per cent. *ad valorem*, from monopolies of maté and timber, and from tithes, which last are rigorously exacted. The only outlays beyond the ordinary expenses of the governing machinery for many years have been the cost of constructing a few good roads on the more frequented routes of travel and trade. The permanent standing army numbers 8,000 men, but can readily be increased to 80,000. The soldiers are distributed in *guardias* and *piquetes*, which line the frontier along the rivers Parana and Paraguay at regular intervals of a few miles.—Soon after the discovery of the estuary of La Plata in 1512 Spanish expeditions began to ascend the rivers. One of these under the orders of Mendoza, the founder of Buenos Ayres, entered the Paraguay, and began in 1536 a settlement at Assumption. The first colonists found Paraguay and the region surrounding it in possession of the Guaranis, an intelligent and industrious race, which rapidly adapted itself to the civilization of the Europeans. In common with the other Spanish provinces in this part of South America, Paraguay was for a long time a part of the viceroyalty of Peru; but in 1620 a new government was formed, including the settlements up to the sources of the Paraguay, and styled the government of the Rio de la Plata. The first missionaries to Paraguay were Franciscans, who gave way a little after the middle of the 16th century to the Jesuits, who met with an astonishing success in converting and winning the confidence of the natives. They established *reduccions* or missions between the Uruguay and the Parana, extending across the latter river into the present limits of Paraguay, collected their disciples by thousands into villages, built splendid ecclesiastical edifices, and finally, by a mandate which they obtained about 1690, forbidding all other Spaniards to enter their territory without their permission, were enabled to establish an almost independent theocratic government. But they were expelled in 1768, and their missions were broken up. Their converts were dispersed, the larger portion of them settling in Paraguay. In 1776 the La Plata and Paraguayan provinces were erected into a viceroyalty, and the capital established at Buenos Ayres. After the destruction of the home government by the French in 1809, a provisional government was established at that city, which still acknowledged the sovereignty of Spain. The Paraguayans, however, in 1811 took steps to secure their independence, and defeated an army under Gen. Belgrano, sent by the authorities of Buenos Ayres to coerce them into submission. In 1813 J. G. R. Francia, the secretary of the revolutionary junta, and Don F. Yegros were appointed consuls for one year; but in 1814, at the instigation of Francia, the consulship was abolished and himself elected dictator for 3 years, at the end of which term he had the address to secure his reëlection for life. Henceforth, until his death in 1840, he was the absolute ruler of Paraguay. He followed the example set by the Jesuits, and prohibited the entrance or exit of foreigners. His government was firm, and sometimes, perhaps, he displayed an unnecessary cruelty; but he introduced many reforms, established schools, and devised a code of laws. He was succeeded by the dictator Vibal, but in 1841 the consular system was reëstablished, and Don Carlos Antonio Lopez and Don Mariano Roque Alonso were named consuls. In 1844 the title of the executive was again changed, and Lopez was elected president for 10 years; at the expiration of his term he was reëlected for 3 years, and again in 1857 for 7 years. His domestic government seems to be as strong as Francia's, but he has been more liberal to foreigners, and has surrendered the control of church matters into the hands of the priesthood. The independence of Paraguay was not formally acknowledged by the other states of La Plata until Urquiza came into power in the Argentine confederation, and made a treaty with Lopez, July 14, 1852. It was then recognized by Great Britain, in a treaty concluded in Jan. 1853, and confirmed in the following March. In the same year the United States government sent the steamer Water Witch, under Commander T. J. Page, to survey the river La Plata and its tributaries. Capt. Page was well received by President Lopez, and his mission was successfully carried on until Feb. 1855, when the Water Witch, in the peaceful prosecution of her voyage up the Parana, was fired upon by the Paraguayan fort Itaparu, and one man killed. The fire was returned, but as the steamer was of small force and not designed for offensive operations, she soon retired from the conflict, and Capt. Page hastened to communicate the facts of the case to his government. Preparations were made at once to demand reparation, and a fleet consisting of 2 frigates, 2 sloops of war, 3 brigs, 12 armed steamers, and 2 armed store ships, was sent to the river La Plata. A commissioner was appointed to accompany the fleet. In Jan. 1859, Commissioner Bowlin reached Paraguay in the steamer Fulton. He opened negotiations with President Lopez, and by the mediation of Urquiza an arrangement was concluded by which Paraguay agreed to make compensation. Capt. Page resumed his surveys, and completed them in Dec. 1860. In 1858, by a convention with Brazil, the waters of the Paraguay were declared to be open to the mercantile marine of all friendly nations. The efforts to establish a systematic and direct trade with Paraguay have not as yet been very successful. In 1853 an American company went out, but were forced to return the following year. A French settlement was established in 1855, but meeting with no encouragement from the Paraguayan president, the colonists abandoned it the same year.

PARAGUAY, a river of South America, having its sources in several lakes in the province of Matto Grosso in Brazil, about lat. 13° 30′ S., long. 56° 20′ W., and flowing into the Parana in lat. 27° 17′ S., long. 58° 27′ W., 20 m. above the town of Corrientes, and about 1,000 m. from the Atlantic, after a circuitous but generally S. course of 1,890 m. In its upper part it forms the boundary line between Brazil and Bolivia for nearly 500 m., and then between the former and the Argentine republic for about 60 m. For the remainder of its course it separates the Argentine republic from the republic of Paraguay. Its principal tributaries are the Cuyaba, Tacoary, Negro, Blanco, Apa (known to the early Spaniards as the Corrientes), Tebiquary, Pilcomayo, and Vermejo, the two last being by far the largest and most important. The country upon both banks is rich and fertile, and varied with grassy plains, extensive palm groves, and tracts of forest in which there is much timber of excellent quality, both for ornamental and building purposes, and as fuel for steamers. The general width of the river to Assumption is about half a mile, and nowhere less than 450 yards; and the least depth found by the U. S. steamer Water Witch, which ascended in 1853 to Corumba, lat. 19° S., long. 57° 57′ W., was 20 feet. At Corumba the breadth was 600 yards, and the depth 15 feet, the least depth found between Assumption and Corumba being 10 feet. The seasons of high and low water in the Paraguay and Parana are different. The maximum height of the periodical rise in the former is about 13 feet, which is ordinarily attained in December, though in some years it happens in November or even in October. The channel of the Paraguay is free from obstructions, and has sufficient depth at all seasons to Corumba for river steamers of a large class. By a convention with the Argentine Republic (1852) the absolute sovereignty of the river was confined to Paraguay, but its waters were declared free to all nations.

PARAGUAY TEA. See Holly.

PARAHIBA, a maritime province of Brazil, bounded N. by the province of Rio Grande do Norte, E. by the Atlantic, S. by Pernambuco, and W. by Ceara; area, 21,700 sq. m.; pop. in 1856, 209,300. The principal river in the province is the Parahiba, beside which there are several smaller. The surface is in general mountainous, and between the mountains there are extensive valleys, which for the most part have a dry sandy soil. Near the rivers there are tracts of good ground, where rice and sugar cane are raised; and on the slopes of the hills cotton, tobacco, and mandioc thrive well. The forests afford excellent timber, gums, resins, and other products. The chief exports are cotton, sugar, and timber. There are several schools in the province; and it sends 2 senators and 5 deputies to the imperial legislature.—The capital, PARAHIBA, is situated on the Parahiba river, about 16 m. from the sea, and 65 m. N. from Pernambuco; pop. 15,000. There are several public buildings and churches, a number of religious houses belonging to the Carmelites and other orders, a college, and 2 primary schools.

PARAHIBA DO SUL, a river of Brazil, which has its source in the E. part of the province of São Paulo, on the N. side of the Serra do Mar, enters the province of Rio de Janeiro, and after a tortuous course of more than 500 m. falls into the Atlantic at São João da Praya, in lat. 21° 38′ S.

PARALLAX, the apparent displacement of a heavenly body arising from a change of the observer's position. The angle subtended at the body by the line joining the two stations is the measure of the parallax. As the positions of the heavenly bodies have reference in practical astronomy to the earth's centre, a correction for parallax is necessary in every observation, except when the body is in the zenith, where the parallax vanishes. It is greatest in the horizon, and is there termed horizontal parallax. Annual parallax is the variation of a star's place by being observed from opposite points of the earth's orbit. This is extremely minute, notwithstanding the great length of the base line, and is so difficult of determination that it long defied the endeavors of astronomers to detect it. (See ASTRONOMY.) The apparent absence of stellar parallax was considered by Tycho Brahe fatal to the Copernican doctrine of the earth's orbital motion. Galileo suggested a mode of investigating the problem by observations on two stars of different magnitudes situated close together. This mode has been successfully applied by modern observers. Hooke was the first to use the telescope in this investigation, but he failed. The aberration of light had not then been discovered, and the result he announced as parallax was probably due to this cause. The same is to be said of Flamsteed. The attempts of astronomers to determine parallax led to two signal discoveries, the aberration of light by Bradley (1725), and the systems of double stars by the elder Herschel (1803). The earliest approximately successful researches on this problem were made by the elder Struve, begun in 1835 on the star α Lyræ, though his conclusions were not received with entire confidence by astronomers. The first unequivocal success was reached shortly afterward by Bessel at Königsberg on the star 61 Cygni, and by Henderson at the Cape of Good Hope on the star α Centauri.—The problem of the parallax of the fixed stars is precisely the same in kind as that of the distance of an inaccessible object upon the earth's surface. When an object is near, a small change in the point of view will displace the object sensibly. Even the two eyes do not see a near object in the same position; thus by looking at it first with one eye closed and then with the other closed, its place, as referred to an object behind it, is made to shift to and fro. This is called binocular or two-eyed parallax, and is the well known principle of the stereoscope.

PARALYSIS, or PALSY (Gr. παράλυσις, relaxation), loss of the function of motion or sensation, from an interruption or destruction of the nervous influence necessary to those acts. This may occur either in the brain, the seat of sensation and volition, in the course of the nervous connection (spinal marrow and nerves) by which sensation and volition are conveyed to and from the brain, or, in some instances at all events, in the peripheral termination of the nerves. The nerves of special sense are sometimes affected with paralysis; thus we have arising from this cause amaurosis (blindness), cophosis (deafness), anosmia (loss of smell), and aguestia (loss of taste). Anæsthesia, loss of the sense of touch or feeling, is rarely observed except as connected with loss of motion; and it is to this latter affection, attended with more or less anæsthesia, that the term paralysis is commonly applied.—Paralysis of motion is mainly of three kinds: hemiplegia, depending on apoplexy (see APOPLEXY) or softening of the brain; paraplegia, depending commonly on congestion, softening of, or hemorrhage into the spinal marrow (see SPINAL MARROW, DISEASES OF); and partial paralysis, when from pressure at the root or in the course of a nerve, arising from a tumor, morbid growth, &c., from mechanical injury, or often from some unknown cause, the parts supplied by a particular nerve are paralyzed. The paralysis of the muscles of one side of the face, arising from an affection of the *portio dura* of the 7th pair, is a familiar example of this variety of paralysis. Again, certain mineral poisons, particularly the preparations of lead and arsenic, cause paralysis both of sensation and motion, and the paralysis in these cases is commonly attended by peculiar symptoms by which its nature can be recognized. It will thus be seen that paralysis is a symptom rather than a disease, and occurs in complaints differing widely in their seat and their causes. As diseases of the brain and spinal marrow produce by far the most numerous and most serious cases of paralysis, and as it is these cases that principally interest the physician, the reader is referred to the articles on those organs for the further elucidation of the subject.

PARAMARIBO, the capital of Dutch Guiana, on the river Surinam, about 5 m. from [illegible] mouth, in lat. 5° 49′ N., long. 55° 33′ W.; pop. 15,000, 9,000 of whom are blacks. It is interected by 3 canals, and the streets generally ie at right angles to each other. It contains several churches, 2 synagogues, and some chartable institutions, and is the centre of the Dutch West India trade. Sugar, coffee, coton, and indigo are the chief exports; and provisions and manufactured goods are imported.

PARAMATTA, a town of New South Wales, situated on a small river of the same name near the W. extremity of Port Jackson, in lat. 33° 48′ S., long. 151° 1′ E., 16 m. W. N. W. from Sydney; pop. about 5,000. The streets are wide and regularly laid out, but badly paved, and the main avenue is about a mile ong. There are several churches and schools, an orphan asylum, a lunatic asylum, and a prison; but the town has lost a great deal of its importance since New South Wales ceased to be a penal colony. The observatory was removed to Sydney in 1858. Woollen cloths called "colonial tweed" and "Paramatta cloth" are manufactured, and salt is made in the vicinity. Paramatta is connected with Sydney by railway, and small steamers ply between them at short intervals throughout the day.

PARANA, a S. province of Brazil, bounded N. by São Paulo, E. by the Atlantic ocean, S. E. by Santa Catarina, S. by Rio Grande do Sul, and W. by Uruguay and Paraguay; extreme length 460 m., breadth 350 m.; area, 115,000 sq. m.; pop. in 1856, 72,400. It was set off about 1853 from the province of São Paulo, of which it formerly constituted the *comarca* of Curitiba. Curitiba is the capital, and Paranagua the chief port. The sea coast s indented by several bays, and many small slands lie at short distances from the shore. A range of mountains runs in an E. N. E. and W. S. W. direction about 80 m. from the sea coast, and several offsets extend from it toward the interior of the country. The province is watered by numerous rivers, the most important being the Parana, which flows along the greater part of the W. frontier, and receives nearly the whole of the drainage of the provnce through its tributaries the Paranapanema, Iray, Piquere, Yunasan, and Uruguay. The climate is remarkably healthy. The soil is ferile, and the inhabitants are chiefly occupied in agricultural pursuits, and in rearing cattle and swine. Large quantities of *maté*, or Paraguay ea, are exported, but the general trade is inconsiderable. A European colony was estabished near the centre of the province between 1851 and 1855, upon part of an extensive tract of land which the prince de Joinville received as a marriage portion with Dona Francisca, sister of Dom Pedro II. It is called the Colonia Dona Francisca, and in 1857 the immigrants and their children numbered about 1,500, chiefy Swiss, with some French and Germans.

PARANA, a river of South America, which has its sources in the province of Minas Geraes, Brazil, about 100 m. N. W. from Rio de Janeiro, near lat. 20° 30′ S. and long. 43° 30′ W., and, after receiving many tributaries, flows into the estuary called the Rio de la Plata by several mouths, between lat. 33° 45′ and 34° 30′ S., after a course of about 2,040 m. It flows at first in a W. direction for 500 m., till it is joined by the Parnahiba, when it turns S. S. W. to the boundary of Brazil and Paraguay, near which, about lat. 24° 30′ S., it forms the cataract called Salto de Sette Quedas, and then runs S. and for about 120 m. forms the dividing line between Brazil and Paraguay. It continues in a southerly direction for 60 m., and then turns S. W. and afterward W. till it is joined by the river Paraguay a little above Corrientes. Thence it pursues a S. course to Santa Fé, where it separates, forming several islands, and flows S. E. till it unites with the Uruguay to form the Rio de la Plata. Its principal tributaries are the Paraguay (which is larger and longer than the stream in which its name is lost), the Yunasan, Iray, Paranapanema, Pardo, Tiete, Parnahiba (which next after the Paraguay is the most important), and Mujiassu. It is navigable to Corrientes for vessels drawing 7½ feet, and for smaller craft to Candelaria, 150 m. further, where rapids occur.

PARAPHERNALIA (Gr. παρα, beside, and φερνη, dowry), in law, all the personal apparel and ornaments of the wife, which she possesses, and which are suitable to her condition in life. The word was borrowed from the Roman law. The *dos*, or dowry, of a Roman wife was that portion which was contributed by her, or in her behalf, toward bearing the expense of the household (*ad sustinenda matrimonii onera*). That part of her property, over and above her *dos*, which she withheld, constituted her *bona paraphernalia* (*bona quæ præter dotem uxor habet*). This property generally remained in the hands of her father or *tutor* (guardian), and the husband had no rights over it, except those which were expressly given him by the wife. If she brought any chattels of her paraphernalia into her husband's house, he had the use of them; but, for the assurance of her title, the wife made an inventory of the chattels and the husband signed it. The paraphernal estate might consist of any kind and any amount of property. The husband had no interest in it, and the wife might dispose of it, or bring an action in respect of it, without his authority or consent. These, and the other rules of the Roman code upon the topic, remain without material modification in the modern civil law of Europe.—In the English law, paraphernalia acquired a meaning widely diverse from that which it bore in the Roman law. Yet in its earliest use it was no doubt applied with a regard to its etymology, and is therefore as correctly used in our own as in the civil law. Thus, the old authors Cowel and Blount define paraphernalia as "those goods which a wife, beside her dower and jointure, is allowed to have after her husband's death." The goods thus allowed to the wife are, as we have seen, the personal apparel and ornaments which she possesses, and which are suitable to her rank and condition in life. It is essential that these things came to her from the husband, for articles given to the wife by any other, as by her father or other relation, or even by a stranger, are absolute gifts to her, and are secured to her separate use. But the paraphernalia are gifts *sub modo*. During his lifetime, the husband may dispose of all of them but her necessary apparel, and, with the same exception, they are subject after the husband's death to the claims of his creditors. Nothing however but insolvency, or complete alienation or sale by the husband, will defeat the wife's right of ownership. Pledge of the goods will not suffice. Her right cannot be defeated by the husband's will bequeathing the paraphernalia. If they were in her possession at the time of her husband's death, she will hold them against his executors or personal representatives.—Paraphernalia is quite an obsolete title in American law, the common law rules on the subject being generally superseded by the provisions of state statutes.

PARASANG (Gr. παρασάγγης), a measure of length among the ancient Persians, which appears to have varied considerably, being from 30 stadia (3¾ m.), which is the measurement of Herodotus, to 60 stadia. According to Rawlinson, it was originally a measure of time (an hour), not of distance, and in passing from the one meaning to the other it came to mark a different length in different places according to the nature of the country traversed. The modern Persian *farsakh* varies from 3¾ to 4 m.

PARASITE. See ENTOZOA, and EPIZOA.

PARCÆ (Gr. Μοῖραι), or FATES, in Grecian and Roman mythology, daughters of Erebus and Night or of Jupiter and Themis. They had control over the universe, and particularly human destinies, presided over all great events in the lives of men, executed the decrees of nature with inexorable decision, and punished criminals through their ministers the Furies, whose sisters they were sometimes said to be. In Homer μοῖρα is fate personified, and is almost invariably mentioned in the singular; but Hesiod describes 3 fates: Clotho or the spinner, who spun out the thread of human life; Lachesis, the disposer of destinies, who twirled the spindle while Clotho held the distaff; and Atropos the inevitable, who cut the thread when it had reached its proper length. They are sometimes regarded simply as the goddesses of the duration of human life, in which case they are but two in number, one presiding over birth and the other over death. They were described by the poets as hideous old women, stern, cruel, and sometimes lame. They had shrines in many parts of Greece.

PARCHMENT (Lat. *pergamena*), the skins of sheep and other animals, so prepared in sheets as to render them fit for being written upon. Parchment was known at a very early period, and the manufacture of it is no doubt an eastern invention, which is said to have been improved if not originated by Eumenes II., king of Pergamus (who reigned 197–159 B. C.), whence its name. Herodotus states that the ancient Ionians wrote on skins many ages before that time. Wilkinson in his "Ancient Egyptians" says: "The use of parchment, or of prepared skins, for writing upon, was not however first suggested at Pergamus; it had been known ages before in Egypt; and records kept in the temple are mentioned in the time of the 18th dynasty, 1,200 years before Eumenes, written upon skins called *Thr* or *Taher*—a name which, as Mr. Birch thinks, resembles the Chaldee *Tkar*. Rolls of leather are also found in the tombs, buried with the deceased in lieu of papyri, which are of a very early period, and were adopted in consequence of the high price of the papyrus paper." The early Arabs inscribed their poetry and compositions on the shoulder bones of sheep; and after their conquests in Asia and Africa these people so speedily profited by the inventions of the nations they subdued, that parchment was manufactured in Syria, Arabia, and Egypt, which in color and delicacy might vie with our modern paper. The ancients generally wrote only on one side of their parchment; but so valuable was it, that they not unfrequently erased the writing and used it a second time. Up to the present day, notwithstanding it has been superseded to a very great extent by the introduction of paper, no substitute for it has been found in a variety of purposes to which it is applied. The finer sorts of parchment called vellum, used for important writings, as deeds, wills, &c., are manufactured from the skins of calves, kids, and still-born lambs. The heavier parchment for drum heads is made from the skins of asses, older calves, wolves, and goats. The skins of most animals are suitable for parchment, but the better sorts being in demand for leather, the inferior kinds are chiefly taken for the former material. All these are similarly prepared. The skin, being freed from the hair, is placed in a lime pit for the purpose of cleansing it from fat. The pelt is then stretched upon a frame fixed against the wall of the building, formed of 4 wooden bars perforated with holes, in each of which is a peg or screw. A number of cords are tied firmly to the edges of the skin and passed through holes in the screws, which by being turned bring the skin to the required tightness. Great care must be taken that the surface be perfectly free from wrinkles. The skinner then with a semicircular knife, called a half-moon knife, pares away all the fleshy excrescences from the one side, and turning the frame over scrapes off the dirt, slime, and moisture from the other. The surface is next ground by scattering sifted chalk or slaked lime on the flesh side, and rubbing it with fine pumice stone, the lime taking up still more of the moisture. The grain side is then rubbed with the pumice alone. The skin is dried gradually, and in the winter care must be aken to secure it against frost. In summer it must be occasionally moistened to prevent its drying too suddenly. Whenever this is done, it equires immediate tightening. The woolly side of lambskin is used for removing the chalk and ime. Should any traces of grease be discovered, the skin is again soaked in a lime pit for or 10 days, when it is again stretched and dried. This process being completed, it is cut all round, taken out of the machine, and fastened with cords upon a piece of calf skin which is extended on a frame, and reduced to about half its thickness by being pared with a sharp knife. This operation requires considerable skill and a steady hand. Such irregularities as remain are easily removed from the skin, which is laid upon a cushioned bench and then rubbed with pumice. Should any small holes appear in the parchment, they are neatly mended by paring down their edges, and pasting on small pieces with gum water. The green color is given to parchment by a solution made with 30 parts crystallized acetate of copper and 8 of bitartrate of potassa in 500 of distilled water, 4 parts of nitric acid being added when the mixture is cold. The parchment being moistened, this preparation is applied with a brush, and the polish is given by white of egg or mucilage of gum arabic.

PARDOE, Julia, an English authoress, born in Beverley, Yorkshire, in 1812. She is the daughter of an officer in the British army, and early manifested a great fondness for literature, producing a volume of poems when she was only 13 years old. The first of her works which gave her any celebrity was "Traits and Traditions of Portugal" (2 vols. 8vo., 1833), which country she had visited for the benefit of her health. In 1835 she went to Constantinople, and upon her return published "The City of the Sultan" (3 vols. 8vo., 1836), and furnished the letter-press for "The Romance of the Harem" (3 vols. 8vo., 1839), and "The Beauties of the Bosphorus" (2 vols. 4to.). On returning from a trip to Hungary, she wrote a work upon the institutions of that country, entitled "The City of the Magyar" (3 vols. 8vo., 1840), which was followed by the novel of "The Hungarian Castle" (3 vols. 8vo.). Turning her attention to French history, she produced one of the best known of her works, "Louis the Fourteenth, and the Court of France in the Seventeenth Century" (3 vols. 8vo., 1847), and after a short interval the "Court and Reign of Francis I." (2 vols. 8vo.), and the "Life of Mary de Medicis" (3 vols. 8vo.). Among Miss Pardoe's numerous other works may be mentioned "The Confessions of a Pretty Woman," "The Rival Beauties," "Reginald Lyle," "The Jealous Wife," "Thousand and One Days" (1857), a collection of oriental tales, and "Pilgrimages in Paris" (1858). In 1859 she received from the crown a pension of £100.

PARDON, in its proper sense, the act of grace by which the sovereign declares that the guilty shall be regarded as innocent. In human political societies, this effect is accomplished, not by absolving the moral guilt of the criminal, but by removing or withholding those penal consequences which the law attaches to crime, and which indeed among men alone distinguish the guilty from the innocent. Complete pardon therefore involves remission of all the penalties which the law has inflicted on the offender; not the fine or imprisonment only, or whatever else may have been the physical form of punishment, but also all the infamy and all the incapacities which infamy imposes. Full pardon completely restores the civil status of the criminal. The remission of part of the penalties, when that is an act of clemency purely, may be called a partial pardon. From pardon, whether complete or partial, in this its proper sense, is to be distinguished that mere remission of penalties which, though popularly and perhaps conveniently called pardon, is nevertheless not so, because it is an act of justice and not of grace. A slight examination of the elements of pardon will show that this use of the word is incorrect, and that an observance of the distinction is material. Before proceeding to this, it will be well to repeat here the definition of pardon which was given by Chief Justice Marshall. It may not be altogether exact, but it is often quoted in our law books, and expresses the usual acceptation of the word. "A pardon," said Marshall, "is an act of grace, which, proceeding from the power intrusted with the execution of the laws, exempts the individual on whom it is bestowed from the punishment which the law inflicts for a crime which he has committed." A pardon is then an act not of justice, but of grace. Pardon necessarily implies punishment; and punishment, in all well ordered states at least, supposes guilt, ascertained in the due course of law, and justly visited with a penalty. For, as in the state it must be the theory, to say the least, that the courts have the monopoly of doing justice—that is, if the impartial and exact application of laws, which are intended and supposed to dispense justice, does in fact accomplish that end—so, theoretically, it must be assumed, and generally it will be rightly assumed, that he is guilty whom the courts declare to be so, and that the penalty inflicted is justly inflicted. If the punishment of such a one be but an act of justice, the remission of it, or a pardon, must be an act of clemency or grace. But it is the chief end of punishment to advance the public welfare. When then the commonwealth will derive more or as much advantage, or even will suffer nothing, from the remission of the punishment, this may well be remitted; and this consideration ought to be the measure and guide of the pardoning power. Forgiveness must come of course from the one who is injured, and that, in all states, is the sovereign. Clemency, says Montesquieu, is the distinctive quality of the monarch. The ultimate power, the real sovereignty, whether it reside in a king or in the people, as it is the source of the law, so must it be the source of grace to him who breaks the law. In the forms of government which have most prevailed, the crowned prince has been regarded as the sovereign, and pardon has always been his prerogative. In democratic states, the people is sovereign; but in imitation of monarchies, and fitly enough, though not for any necessary reason, they have generally delegated the power of pardon to him who is placed at the head of the state; that is, to the chief executive magistrate. The constitution of the United States gives the power to the president alone. In some of the states it is to be exercised with the advice and consent of the council. Sometimes it is reserved to the legislature, and the governor can only reprieve temporarily. Now, a pardon presupposes guilt and just condemnation, and works a suspension of a just sentence, and defeats and annuls, so far, the law which pronounced it. But it is the first principle of the best forms of government, that the law must be supreme; and it is at least inconsistent with this principle to suffer the enforcement or suspension of the laws to depend on the election of one man or of a body of men. When guilt is evident, the pardoning power can, as we have seen, be well exercised only when it is clear that the general welfare will suffer no detriment from the indulgence shown to the criminal. There are many and obvious reasons why this power may prove in its use prejudicial to the state. Indeed, those who are most conversant with the matter assure us, that in this country especially it is sometimes injudiciously and mischievously exercised. Yet, as we have already intimated, there is a power, generally called a pardoning power, though inaccurately so, because it is an act of justice, not of grace, which, if used discreetly, is only beneficent; and it is one which ought to exist in every state, in order to protect men from the accidental injustice which the laws must sometimes do. Owing to the imperfection of the laws themselves, or to the imperfect application of good laws, an innocent man may be condemned to punishment; or, at least, a slight offence may be visited with too severe a penalty. But remission of the sentence in these cases, whole or partial, according as the sentence is wholly or partially unjust, though regarded as an act of clemency, is, in the one class of cases, only that very justice which the courts in the particular case sought to do, and would have done if at the trial the proofs of innocence had been as clear as they now are; and in other cases, it is an equitable indulgence to those who, though within the letter of the law, yet, could their cases have been foreseen, would have been perhaps excepted from its general rules, or who ought to have been excepted but could never be, because of the necessary imperfection of legislation. But even in these cases, when justice alone is intended to be done, where the innocent, not the guilty, is to be relieved from penalties, it is hardly possible that the so called pardoning power shall always be judiciously exercised. There must be one law for all the citizens of the state; and though it is very probable that the same law will not apply with equal fairness to all cases, yet it would be highly inexpedient to set any man or body of men over the courts, with discretionary power to revise their sentences, or to reform them, according to what he or they might consider the exact merits of each case. In short, in either view of the power of pardon, whether we regard it as it is exercised for the guilty or the innocent, its administration may easily become detrimental to the public. And as from the nature of the thing it cannot well be constitutionally or otherwise in terms limited, but must remain quite discretionary, the people, that is, the sovereignty which has delegated this power, ought jealously to scrutinize the exercise of it. —The indulgence of pardon extends only to crimes already committed. In no well governed state will the sovereign grant dispensation to crimes to be committed in the future: and in republics, unless the people, which is the sovereign, have expressly delegated such an authority, the executive, which is usually invested with the power of pardon, has no such right of dispensation. Further, as pardon is measured by and regards only the public welfare, it cannot intrude on private rights. Therefore a pardon which takes away other penalties cannot divest a private citizen's right in a forfeiture under a penal statute, or his share in the penalty which such statutes secure to the informer. On the principle that the greater power includes the less, it is well established, though it has been sometimes questioned, that the power of pardoning absolutely includes that of pardoning conditionally. Any conditions, therefore, precedent or subsequent, may be annexed to the offer of a pardon; and on the performance of these the validity of the grant may be made to depend.—In regard to the legal effect of a pardon, it may be observed that pardon in its proper sense completely rehabilitates the criminal; but usually the executive clemency consists only in a remission of part of the sentence. Now, if the judgment which the law passed upon the offender consisted exclusively in fine or imprisonment, remission of these does, in fact, restore him to full enjoyment of all his civil rights. But when infamy attaches by particular laws to the conviction, as it does in the case of felonies, forgiveness of the fine or imprisonment only by no means makes the pardoned equal with the innocent; in short, the pardon is partial, or it were perhaps better to say, it is no pardon at all. It must be remarked, however, that the distinction is not invariably recognized; but the denial of it seems to have introduced a discordance into the decisions of the courts. Thus in a Pennsylvania case, where the president of the United States had "remitted" to the party offered as a witness "the remainder of his sentence," it was held by the court that the pardon, as it was called, removed the sentence and also the infamy which attended the crime, and therefore restored the competency of the witness. But in Massachusetts, in a precisely similar case, where, namely, the pardon "remitted the residue of the sentence," the court took the plain and just distinction between pardon and the mere annulling of a sentence of imprisonment, holding that the latter could not remove infamy and the consequent incapacity, because that could be effected only by an express forgiveness of the offence, that is, by words which distinctly imported a restoration to all civil rights, and showed the willingness of the pardoning authority to regard the criminal as entirely innocent. Quoting the language of an approved author on criminal practice, the court said the pardon, or rather remission of the punishment only, does not remove the blemish of character, and so does not revive competency. There must be full and free pardon of the offence, before these can be removed or revived. So the English law held that when attainder wrought corruption of blood, the party was not completely reinstated by the king's charter of pardon; and generally it has been laid down in this country, that commutation to a shorter period of a life term to the state prison (which in the American law generally works the civil death of the criminal) does not restore marital rights, or entitle the party to the guardianship of his children. Where these disabilities remain, the pardon is not complete. The distinction which we are stating is partially illustrated by the law of Rhode Island. In that state, persons who have been guilty of infamous crimes are deprived of their franchise of voting; and the constitution expressly declares that the governor's pardon shall not reinvest them with the forfeited right, but that they shall be enfranchised only by act of the general assembly. In other words, the power of pardon in these cases is so far reserved to the sovereign people, that it can be exercised only by a special act of the legislature. The executive can only remit penalties.—A pardon is regarded as a deed; and delivery and acceptance of it are essential to its validity in all cases, whether of capital offences or of misdemeanors.

PARÉ, AMBROISE, a French surgeon, born at Bourg-Hersent, near Laval, in 1509, died in Paris, Dec. 20, 1590. His parents were too poor to afford him a good education, but having learned Latin from a benevolent priest, he repaired to Paris in his 17th year with the resolution of becoming a surgeon. His progress in study was so rapid that in 1536 the captain-general of French infantry, René de Montéjan, appointed him surgeon to his troops and took him to Italy. On his return to Paris, he became a member of the college of surgery, of which a little later he was elected provost. His fame spread at home and abroad; in 1552 he was appointed surgeon to Henry II., and afterward attached in the same capacity to Francis II., Charles IX., and Henry III. Brantôme relates that this last prince took good care to shield his surgeon, who was suspected of being a Huguenot, from the dangers of the St. Bartholomew's night, "keeping him in his own room and motioning him not to move therefrom." The fact, however, has been denied by Paré's latest biographer. However it may be, Paré commanded general esteem and admiration for his goodness as well as his professional skill. He is still considered as the father of French surgery, and his works are held of the highest authority, particularly on the subject of gunshot wounds. The first edition of his complete works appeared at Lyons in 1562, and the last, edited by Dr. Malgaigne, with historical and critical notes, at Paris in 1840–'41 (3 vols. 8vo.). They were translated into English by T. Johnson (fol., London, 1634).

PAREGORIC ELIXIR, or camphorated tincture of opium, a preparation of opium and benzoic acid, each 1 drachm; oil of anise, 1 fluid drachm; honey, 2 ounces; camphor, 2 scruples; diluted alcohol, 2 pints; macerated for 14 days and filtered through paper. This is a popular medicine, used as an anodyne and antispasmodic. It allays cough in cases of asthma and catarrh, relieves slight pains in the stomach and bowels, and has been extensively given to young children to induce quiet sleep.

PAREJA, JUAN DE, a Spanish artist, born in the West Indies in 1610, or according to Cean Bermudez in Seville, of parents who were slaves, in 1606, died in Madrid in 1670. The generally received opinion of his origin is that his mother was an Indian woman and his father a Spaniard. He appears at an early age to have become the slave of the painter Velasquez, who employed him about his studio, where, from frequent observation of the labors of his master, he imbibed a predilection for painting. Fearing to acquaint Velasquez with a taste which seemed so incompatible with his servile condition, he labored in secret to acquire a knowledge of the processes employed in painting, and almost denied himself sleep and rest in the attainment of this object. When he conceived that he had sufficiently mastered his art, he took advantage of a visit of the king to the studio of Velasquez to place one of his own pictures with its face against the wall. The king, as was his custom, asked to see the pictures so placed, and upon expressing surprise and pleasure with that of Pareja, the latter fell on his knees and implored the royal clemency for having presumed to practise painting without the permission of Velasquez. The king willingly interceded for him, and Velasquez not only forgave the transgression, but emancipated Pareja, who testified his gratitude by voluntarily serving his master during the remainder of his life. He was an excellent painter of portraits, imitating the style of Velasquez so exactly that their works of this class are scarcely to be distinguished, and also executed some historical pieces of merit.

PARENT AND CHILD. See INFANT.

PARENT DU CHÂTELET, Alexandre Jean Baptiste, a French physician, born in Paris in 1790, died March 7, 1836. He was graduated M.D. in 1814, practised medicine for some years, published in 1821 his *Recherches sur l'inflammation de l'arachnoïde cérébrale et spinale*, and, encouraged by Professor Hallé, then made public hygiene the main object of his labors. The results of 8 years' experience were embodied in his *Essai sur les cloaques ou égouts de la ville de Paris, envisagés sous le rapport de l'hygiène publique et de la topographie médicale de cette ville* (8vo., Paris, 1824). In another paper, drawn up in conjunction with D'Arcet the chemist, he discussed the influence of tobacco upon the health of the workmen employed in its preparation, maintaining that it was not deleterious. His last and most important work is entitled *De la prostitution dans la ville de Paris, considérée sous le rapport de la morale, de l'hygiène publique et de l'administration* (2 vols. 8vo., 2d ed., Paris, 1837).

PARHELIA. See Halos.

PARIAHS, or Parias, a name employed among the Hindoos to designate the lowest class of the population. They are not properly a caste, being considered more impure than even the Soodras or servile caste, and are held in great abhorrence by the other natives. They act as scavengers, porters, and hostlers, and generally sell themselves with their wives and children to the farmers, who use them with extreme severity. A Hindoo who loses caste is ranked with the Pariahs, a penalty accounted worse than death. The Pariahs are supposed to be descendants of aboriginal tribes conquered ages ago, and are computed to comprise ⅕ of the total population of Hindostan.

PARIAN CHRONICLES. See Arundelian Marbles.

PARINACOCHAS, a lake of Peru, in a province of the same name, department of Ayacucho. It is about 20 m. in length, and lies in a depression between high mountains at an elevation of 10,000 feet above the sea. The river Pausa flows through it.

PARINI, Giuseppe, an Italian poet, born in Bosisio, near Milan, May 22, 1729, died Aug. 15, 1799. He was of humble parentage, and at first supported himself by copying. He published in 1752 a volume of poems under the name of *Ripano Eupilino*, which was so successful that he was admitted as a member of the *accademia dei trasformati* at Milan, and of the academy of Arcadians at Rome. The work on which his poetical reputation chiefly rests is entitled *Il giorno*, a didactic and dramatic satire. When Milan was occupied by French troops, he became an eager advocate of republican principles. His collected works, edited by Reina, appeared in 6 vols. 8vo. (Milan, 1801-'4), and in 2 vols. 8vo. (1825).

PARIS, the capital of France, and of the department of the Seine, built on both banks and on two islands of the Seine, 111 m. from the mouth of that stream; lat. of the observatory, 48° 50′ 12″ N., long. 2° 20′ 22½″ E. of Greenwich; pop. in 1856, including a garrison of [illegible] soldiers, 1,525,942. In 1858 there were 37,451 births, of which 19,073 were male, 18,378 female, 11,757 illegitimate, and 2,899 still-born; 32,362 deaths, of which 19,845 were in private houses, 12,066 in the hospitals, and more than 600 suicides. The population in 1860 was estimated at 1,700,000. The city lies in a nearly level plain 190 feet above the sea, broken on the right bank of the Seine by a range of hills. As it gives its name to that series of geological formations which have become so interesting and well known to the scientific world through the investigations of Cuvier and Brongniart, so it has largely drawn the materials of its architectural rise and beauty from two of the strata of the Paris basin. This has for its base the great chalk formation, upon which rest the following layers in ascending order: plastic clay, marine limestone (of which Paris is chiefly built), silicious (fresh water) limestone, gypsum (the plaster of Paris of commerce) alternating with marls abounding in fossil remains and fresh water shells, sands, beds of millstone, and gravel and clay. It is estimated that [illegible]-000,000 cubic feet of stone have been taken from the immense quarries that underlie nearly ⅙ of the surface of Paris. Having furnished materials for the houses of the living, they began to be used as a receptacle for the bones of the dead, removed from the old cemeteries, in 1784, and took their present name of catacombs.—The climate is variable, but not unhealthy, moist rather than dry, with an average annual fall, in 105 rainy days, of 22 inches of water. Falls of snow are rare and slight. The mean temperature is 51° F., limited by the summer and winter extremes of 96° above and 1° below zero.—The first authentic recorded notices of Paris are found in the writings of Julius Cæsar. Upon an island in the Seine he found a town of huts, the stronghold of one of the 64 confederate Gallic tribes. Much ingenious conjecture has failed to clear away the obscurity that involves the etymology of its name, Lutetia, and the origin of its inhabitants, the Parisii. The former may be a Latinized corruption from three Celtic words, *Luth*, *Thouar*, [illegible] or from two, *Louton Hesi*, signifying "a dwelling in the waters;" and the latter are thought to have been an offshoot from the Belgæ. They were a fierce race of hunters and warriors of the druidic faith. They burned their town rather than it should fall into the hands of the invaders in 55 B. C. When, soon after, physical resistance was overcome, they were still slow to yield to Roman laws and customs. The Parisian spirit of opposition to imposed authority is of old date. An insurrection broke out in 286, and its two leaders, upborne upon shields, were declared emperors by the people assembled near where the Hôtel de Ville now stands. About 360 the emperor Julian, who resided here for a time and has recorded his attachment to the place and its people in his *Misopogon*, ranted new privileges to the town, which rose o the dignity of a city and took the name of Parisis. It was for centuries the seat of a Roman prefect. Its trade was in the hands of a corporation, called the *nautæ Parisiaci*, which ong outlived the Roman dominion, contained he germs of a municipal government, and has eft its symbolic mark, a galley with oars and ails, in the arms of modern Paris. The *palais les thermes*, considerable remains of which are till to be seen under and adjoining the hôtel le Cluny, was occupied by several Roman emperors when they visited the capital of the Gauls, which they made their head-quarters while their legions were endeavoring to repel the irruptions of the barbarians. As the vitality of the overgrown empire, diseased at heart, grew faint and fainter in its extreme members, Paris suffered greatly from these irruptions. It was stormed by Childeric in 465, and was saved from Attila's invasion in 451 only through the courage and wisdom of St. Geneviève, the noble precursor of Joan of Arc. (See GENEVIÈVE.) Near the close of the century, Clovis, the grandson of Meroveus, a Frankish heathen chief, took possession of Paris, embraced Christianity, espoused Clotilda, and built a church dedicated to St. Peter and St. Paul, which was soon after placed under the invocation of his wife's friend, St. Geneviève, who died in his reign and remains to this day the patron saint of Paris. He broke the last weakened bonds of Roman domination, and under him Paris became independently Frank. Under his feeble successors of the Merovingian dynasty, which lasted for 2½ centuries, Roman civilization died away. Meantime the church rose to the possession of wealth, political power, and social influence. According to a not improbable legend, Christianity was first preached at Paris, in the middle of the 3d century, by St. Denis; in the place and manner of whose death, on a hill far north of the limits of the town in those days, the faithful love to find the origin of the name of Montmartre, which other etymologists deduce from a temple of Mars that once stood on that mount. A chapel, dedicated to the true God and St. Stephen, was erected in the reign of Valentinian I., on the site of an earlier altar to Jupiter, now covered by the cathedral of Notre Dame. In the middle of the 7th century, St. Landry, bishop of Paris, founded what has since come, through great, beneficent changes, to be the hospital of Hôtel Dieu. The Carlovingian monarchs, like their predecessors of the Merovingian ine, rarely inhabited Paris. Doubtful legend and conjecture ascribe to Charlemagne the merit of having originated the university of Paris. The Normans repeatedly attacked the city in the 9th century, retiring down the Seine, now with rich plunder from its wealthy churches and convents, now with large ransoms paid by timid priests and citizens, in either case with stimulants to new incursions. The hardly pressed Parisians finally appealed for aid to Eudes or Otto, count of Paris, whom, after he had repelled the invaders, they proclaimed king in 885. His successor 100 years later, of his blood but not his direct heir, was Hugues or Hugh Capet, the first king of France properly so called, from whom directly or indirectly descended all French monarchs down to Louis XVI. Paris now waxed in honors, privileges, wealth, influence, and population. The schools of Paris, illustrated by such teachers as Peter Lombard and Abelard, were resorted to by the youth of all Europe. The powerful order of the templars erected a fortress on the ground where the Marché du Temple, with its 2,000 dealers in old clothes and in every other conceivable second-hand article of economy—one of the most curious of the curiosities of modern Paris—now stands. The foundations of the cathedral of Notre Dame were laid. The city was to other cities of that time much what it is to-day to other European cities, if we may trust to the enthusiasm of John of Salisbury, who visited it in 1176 and wrote as follows: "When I saw the abundance of provisions, the gayety of the people, the good condition of the clergy, the majesty and glory of all the church, the diverse occupations of men admitted to the study of philosophy, I seemed to see that Jacob's ladder whose summit reached heaven, and on which the angels ascended and descended. I must needs confess that truly the Lord was in this place. This passage of a poet also came to my mind: 'Happy is he to whom this place is given as an exile.'" Philip Augustus (1180–1223) recognized the university as a corporation, and granted to its officers a jurisdiction, independent of the royal courts, over the quarter of the city to which it gave its name. He caused a new wall to be built about the town enclosing 625 acres; by a formal act he gave all the refuse straw of the royal apartments for the benefit of the patients of the Maison Dieu; he established two covered markets, and even ordered pavements for the streets. Louis IX. greatly promoted the welfare of Paris by important reforms of customs, laws, and police; by the establishment of many commercial, religious, and beneficent institutions, among which last were a hospital for the blind and a school of surgery. His chaplain, Robert de Sorbon, founded in 1250 a school of theology, the origin of the famous Sorbonne, in the quarter of the university still known as the Quartier Latin or Pays Latin. While King John, taken prisoner by the Black Prince, was held captive in England, the city was governed for a time by Étienne Marcel, the provost of the merchants, independently of the general state. For centuries before as for centuries after the brief reign of this popular leader, Paris was often disturbed by insurrections and popular tumults, and fierce quarrels between great lords and the king, or among themselves, with accompaniment of bloody fights and judicial massacres; its streets, despite royal reforms and new regulations of police in frequent succession, were until modern times unsafe for honest citizens after nightfall. Under Philip IV. there were brilliant public fêtes, for which Paris seems thus early to have been distinguished, and "mysteries" were performed on stages set up in the open air, the first dramatic representations in Paris. Charles V. built a new palace, then called the Hostel de St. Pol, afterward famous in history, with change of destination and name, as the Bastile. The basement only of most private houses in those days was of stone; on this rested one or more stories of timbers filled between with mortar; when the proprietor's wealth permitted, the façade was covered with slates, and the projecting cornices and corner posts were adorned with carvings, representing foliage, fantastic animals, the heads of angels, and biblical personages. Chariots and even four-wheeled carriages, and disorders of swelling luxury, excess of gambling among the rest, are spoken of in contemporary documents. The city had overgrown its old limits, and the monarch caused a new fortified wall to be built, enclosing now 1,084 acres, to protect it against the incursions of the English; who, however, at the end of the sad reign of his insane successor, marked in the annals of Paris by pest, famine, and all the horrors of bloody faction, entered Paris amid Te Deum chants and great fêtes, and proclaimed Henry of Lancaster king of France and England. The enthusiasm of the occasion was only surpassed by that which greeted the entrance of Charles VII. after the expulsion of the English in 1436. About this date Greek was first taught in the university, which then numbered 25,000 students. In 1438 there were 5,000 deaths at the Hôtel Dieu, and in all the city 45,000; wolves prowled through its streets, desolated by war, plague, and famine. In 1466 malefactors and vagabonds of all countries were invited to fill up the broken ranks of its population, which numbered 300,000 souls before 1483, the close of the reign of Louis XI. This astute ruler favored trade and commerce of all kinds, protected against violent opposition the new art of printing and its connected industries, confirmed the privileges of the citizens, endowed the capital with its first special school of medicine, favored the first attempt at lighting its streets, and inaugurated the first rude postal system, putting it in communication with all parts of France. Under Francis I. (1515–'47) the advance of Paris in material prosperity, in arts and letters, in the refinements and in the vices of civilization, received a fresh impulse. The grim castle of the Louvre, commenced by Dagobert and repeatedly enlarged and strengthened by succeeding monarchs, was swept away, and the palace of the old Louvre as we now admire it begun upon its site; the Hôtel de Ville was commenced, new streets were opened, old quarters rebuilt, and a royal free college founded. The origin of the chateau and garden of the Tuileries, the endowment of the college of St. Barbe, now one of the first high schools of Paris, and the effective constitution of what is now the imperial library, date from the reign of Henry II., in despite of whom a Protestant church also was established. The disasters of the so called wars of religion, culminating in the horrors of the St. Bartholomew massacre, fell heavily upon Paris, barring and repelling its progress in all directions. It revived under the rule of Henry IV. The palaces of the Tuileries and the Louvre were greatly enlarged, the Place Royale formed, and the Pont Neuf built. Under the reign of Louis XIII., or rather of his minister Richelieu, the Palais Cardinal, now Palais Royal, was begun. The Luxembourg palace, several fine quays and bridges, and numerous magnificent private hotels in the faubourg St. Germain, date from this period; as do also the *académie Française*, the *jardin des plantes*, and the college that afterward took the name of Louis le Grand. More than 80 new streets were laid out and many of the old ones improved in the long reign of Louis XIV., from which date also the academies, with the exception of the *académie Française*, the observatory, the opera, and the *comédie Française*, the Hôtel des Invalides, the eastern colonnade of the Louvre, the triumphal arches of St. Denis and St. Martin built on the site of ancient city gates, the laying out of the boulevards as promenades, the planting of the Champs Élysées, the enlargement of the Tuileries and the arrangement of its garden nearly as they now are, the forming of the Place Vendôme and the Place des Victoires, 33 churches, a foundling hospital, the hospice of the Salpêtrière, the Gobelins tapestry manufactory, the first city post, the lighting of the thoroughfares with "lanterns placed from distance to distance" (which was commemorated by a medal bearing the legend: *Urbis securitas et nitor*), the rudiments of the modern omnibus (an unsuccessful invention of Blaise Pascal, in the shape of 7 coaches in which "even women took their places," for 5 sous, but from which soldiers and all persons in livery were excluded), and finally, to close the imperfect catalogue of innovations, the first coffee house in Paris. At the accession of Louis XV. Paris occupied a space of [illegible] acres, and counted 500 grand thoroughfares, 9 faubourgs, [illegible] squares and open places, 9 bridges, 22,000 private houses, of which 4,000 had carriage entrances (*portes cochères*), and over 500,000 inhabitants. The capital of science, art, literature, taste, and pleasure, not only for France but for Europe, it was the favorite abode and resort of philosophers, students, intelligent travellers, wearied idlers, of seekers of the most refined and of the grossest enjoyments, of adventurers of all sorts and degrees and nations and tongues. Paris was the laboratory where the great revolution was fermenting. But the political history of Paris belongs to the history of France, and is treated of elsewhere in its appropriate article. The growth of the city had gone on in all ways during this period. The duke of Orleans, better known in history as Philippe Égalité, enclosed the spacious gardens of the Palais Royal with a continuous quadrangle of uniform architecture, whose galleries, furnished with shops of every kind, and coffee rooms, gambling rooms, and wine rooms, became one brilliant bazaar. The famous orgies of the regency in the palace proper were followed by revolutionary orgies in its gardens. It was, up to the first quarter of the present century, the central stage and sink of what was brightest and foulest in Paris. Toward the close of the reign of Louis XVI. the farmers-general of the city customs erected about the enlarged city an *octroi* or customs wall, enclosing an area of 8,124 acres, containing more than 50,000 houses, 967 lighted streets, 46 parish and 20 other churches, 11 abbeys, 133 monasteries and religious houses, 15 seminaries, 10 colleges, 26 hospitals and asylums, 60 fountains, and 12 markets. In the first years of the revolution many monuments of the middle ages were demolished or mutilated; the fine arts generally were neglected in the fierce struggle about more essential things; material growth was checked and the population diminished. But the ground was cleared for future improvements, and many of the institutions of which Paris to-day has best reason to boast date their origin from the revolutionary period; such, among others, are the museums of the Louvre, the bureau of longitudes, the conservatory of arts and trades, the polytechnic school, and the national industrial exhibitions held in Paris, to which are to be added radical vivifying reforms applied to existing establishments of art, science, literature, and charity. In the political order, the revolution completed the work on which Louis XI. and Richelieu and Louis XIV. had unconsciously labored; it swept away the last obstacles that impeded the French tendency to centralization. Out from its chaos was developed that centralizing political and administrative system, whose active sovereign control now extends to the remotest corners of France, vivifying and strengthening the nation and weakening individual action and capacity for action in equal proportion, and exalting the capital as it depresses the country at large. Although under Napoleon more than 100,000,000 francs were expended upon public works, many of them of public utility as well as ornament, several of the grander edifices begun by him were left to be completed by his successors. Under the restoration and Louis Philippe the growth of the city took a rapid extension. Encouraged by peace, private enterprise vied with government in enlarging and adorning the city. Better drainage and paving and lighting of the streets, and increased attention to comfort in domestic architecture, mark this period. The fertility of the intellectual movement was not yet exhausted, and material prosperity seemed at its height at the close of the reign of Louis Philippe. The immediate effect of the revolution of 1848 was to check both. It is, however, from the republic that is to be dated the origin of the changes which, since reduced to a system, are now in course of execution on a scale unparalleled for extent in the material history of modern cities.—Old Paris, with its narrow, crooked streets, so favorable to disease and insurrection, so picturesque and so crowded with historical associations, is rapidly disappearing. The provisional government decreed that the Louvre should be finished, and the legislative assembly passed a law for the prolongation of the rue Rivoli; but little more than the preparation for these works was commenced before 1852. The republic was virtually suppressed by the *coup d'état* of Dec. 1851, and its name abolished when a year later Louis Napoleon had himself proclaimed emperor. It is perhaps natural that the only monarch of France born in Paris should surpass his predecessors in zeal for the embellishing of his birthplace. One of his early acts was to order to be done what Louis XIV. and Napoleon I. had labored at, the government of Louis Philippe had talked of, and the provisional government decreed, namely, the final completion of the Louvre, and its union with the Tuileries. The work was executed in 5 years, at a somewhat greater outlay of money than of taste; the ornamentation, for the style of architecture, is carried to excess. This is but an item of a stupendous plan of public works whose progress under the feverish impulse of the general government, together with an extraordinary activity of private enterprise, will in 10 years have transformed Paris almost past the recognition of those who only know it as it was 10 years ago. The limits of this article preclude a detailed description of this plan. Some indicative features of its nature and extent must be noticed. It aims at public utility as well as fine appearance, and to make of new Paris the most salubrious, convenient, and magnificent city of Europe, a monument of Louis Napoleon's reign, and a fortress for his dynasty. The central market is as grand in its kind as the new Louvre. While that palace was in progress the palace of industry was built. The new rue Rivoli was cut through a tangled labyrinth of narrow lanes, letting light and air into, and facilitating the circulation of business men and government troops through, a traditional stronghold of disease and insurrection. A grand new sewer runs under the new street. On the line of the street is the fine old Gothic tower of St. Jacques, about which, in place of the church long ago destroyed, were clustered tall houses disgracing and hiding its beauty. These were swept away to make room for a prettily planted garden square. At the end of the street is the Hôtel de Ville; the high buildings toppling over crooked lanes that formerly surrounded it were swept away, leaving it in a spacious open place, on one side of which palatial military barracks have been erected. Miles of other broad avenues facilitating communication between all parts of the town; several other great barracks; the laying out of the parks of the Bois de Boulogne and the Bois de Vincennes; numerous gardens, squares, and fountains newly made or newly ornamented, in the most populous as well as in the fashionable quarters; 12 churches completed or in course of building, among which the Gothic structure of St. Clotilde is the most remarkable; 7 bridges; a connected network of sewers underrunning the city on both sides of the Seine, which discharge their contents into the river at Asnières through a grand trunk sewer 19 feet broad, 14½ feet high, and 2¼ m. long; these are among the distinctive features of the public works urged forward by the emperor. The average yearly cost of their execution to the city treasury has been about $2,800,000, from 1852 to 1859 inclusive. During that period, within the then limits of the city, 4,849 private houses were demolished and 9,617 constructed. The constructions are the result of private enterprise. The annual expenditure for carrying on the plan of public works for the 10 years following 1859 has been fixed by law at 18,000,000 francs, of which the state pays 5,000,000. This is entirely apart from the ordinary expenses of the city and the extraordinary expenses necessitated by the recent enlargement of its boundary. In 1859 the aggregate length of paved and macadamized streets was, in round numbers, 300 m., of which more than 200 m. were bordered with trees, gardens, or planted squares; of asphaltum or stone-paved sidewalks, 240 m. The streets were lighted with 15,160 gas lights and 437 oil lamps; they were cleaned and watered at a cost of $844,000. The aggregate length of sewers was 122 m. On Jan. 1, 1860, the limits of the city were extended to the fortifications, incorporating the suburban towns and villages grouped about the old octroi wall, and a considerable expanse of open fields and gardens. The fortifications were constructed in the reign of Louis Philippe. They consist of a bastioned and terraced wall with 34 feet of escarpment faced with masonry, presenting 94 angular fronts, and a continuous ditch 22 m. in circuit and embracing both banks of the Seine. The system of defence is completed by 17 detached forts, each in itself a strong fortress. Within the fortifications is a continuous carriage road, and within that a railroad which connects with the 5 grand lines of railway that radiate from Paris to the boundaries of France. Paris now has an area of 1[illegible],815 acres.—The government of Paris is administered by the prefect of the Seine, assisted by a municipal council of 60 members, and by the prefect of police. All these officers are appointed by the emperor. For certain details of the civil service, the city is divided into 20 districts, each of which has a mayor and two deputy mayors subordinate to the prefect of the Seine. These districts are again divided into quarters, in each of which is a resident *commissaire de police*, an inferior magistrate under the prefect of police. All sanitary regulations and measures for the preservation of public order are under the control of the prefect of police. Under his orders, comprising the municipal police, are 4,590 agents, of whom 3,700 are *sergens de ville* or ordinary patrolmen. The sum of the yearly salaries of officers and men is $1,266,000. Auxiliary to them are about 4,000 gendarmes, and the regiment of the *garde de Paris*, numbering 2,900 men. To meet emergencies, when this thoroughly organized force is unequal to the preservation of order, and always serving the prefect as a sort of base of operations, are 40,000 troops in Paris and its immediate confines. The barracks, the ministries of war and of the interior, the bureaus of the prefecture, and the imperial palaces are connected by telegraphic wires. A military corps of 1,300 officers and men, specially trained for the purpose, effectually perform firemen's duty for the city. On every article of consumption, on building materials, fuel, oil, &c., there is an octroi duty. The sum of these entrance duties in 1860 is estimated at $13,400,000, which is shared between the treasuries of the city and of the state. The whole revenue of the city for 1860 is estimated by the prefect in round numbers at $20,700,000, of which sum $60,000 is raised by a "poll tax" of $2 on 30,000 Parisian dogs; the amount of the city debt is $[illegible].—The prisons of Paris are 8 in number. They are regulated as far as possible in accordance with the bodily and spiritual wants of their inmates, who are furnished with decently healthful and clean food and lodging, with work, books, and priestly counsel. One of them, in the Boulevard Mazas, for persons awaiting trial, especially deserves its name of *prison modèle*, on account of its excellent construction and arrangement. To its other name, *la Nouvelle Force*, it earned a new claim in Dec. 1851, when it became the temporary depot of Thiers, Lamoricière, and other distinguished victims of the *coup d'état*. Beside inferior courts and tribunals, there sit at Paris a court of assize, one of the 27 French courts of appeal; the court of cassation, a supreme court of appeal on points of law only; the *cour des comptes*, whose jurisdiction extends over all public receipts and expenditures, and safeguards the national treasury from loss by peculation or official negligence; and the high court of justice, which may judge, without appeal, charges of conspiracy against the government or of attacks upon the person of the emperor, by virtue of whose special decree alone its action commences.—The prevalent religion in Paris is the Roman Catholic. Beside 70 places of worship connected with public establishments, religious communities, &c., there are 72 parish churches served by 555 priests. The whole number of secular clergy is about 900. There are 19 religious communities of men and 53 of women, whose members are for the most part actively engaged in preaching, teaching, or in works of charity. For worshippers of other creeds, there are 2 Jewish synagogues and 5 French Protestant temples established by government, with 10 Protestant chapels for foreign residents, 2 of which are supported by American contributions, and a church of the Greek rite. Many of the churches of Paris are remarkable for their architecture, or for their interior decorations, or for their historical associations. The cathedral of Notre Dame is a splendid cruciform edifice in the "early pointed" style of so called Gothic architecture; its greatest length is 390 feet, width of transepts 144, height of vaulting 102, width of western front 128, flanked by two massive towers 204 feet in height. Near by springs heavenward the arrowy subtle spire of *la sainte chapelle*, a gem of florid Gothic. St. Germain des Prés is a venerable specimen of the Romanesque style; that of the renaissance is grandly illustrated in St. Eustache and curiously in St. Étienne du Mont. St. Geneviève, an immense pile better known by its unconsecrated name of Pantheon, is distinguished for its Corinthian portico of columns 60 feet high, supporting a sculptured pediment. Its building was commenced by Louis XV. at the suggestion of Mme. de Pompadour. Beneath its pavement rest the remains of Voltaire and Rousseau. St. Germain l'Auxerrois, apart from its varied and rich ornamentation, claims attention because from its belfry was given the signal of the St. Bartholomew massacre; St. Vincent de Paul and Notre Dame de Lorette for their porticos and interior decorations; St. Gervais for its singularly beautiful chapel. St. Sulpice, St. Roch, and St. Clotilde are among the noteworthy churches of Paris. The church of the Madeleine is a singularly grand and beautiful reproduction of pure antique forms. It stands on a raised platform 328 feet long by 138 broad, which is ascended at either end by a flight of 28 steps. A surrounding colonnade of 52 Corinthian pillars, each 49 feet high, supporting a richly sculptured frieze and cornice, intercolumnar niches in the side walls filled with colossal statues of saints, the largest sculptured pediment in the world, crowning the noblest portico the world has seen since the Parthenon, are some of the exterior features of this magnificent Christianized Grecian temple.—The charitable institutions of Paris are remarkable for their number, extent, and excellent administration. There are 22 civil, general, and special hospitals, 19 public *hospices*, 27 asylums or almshouses, and military hospitals. The medical service is performed by the most eminent physicians of the capital; the gentler nursing, in large part, by sisters of some of the religious orders. The number of patients admitted to the civil hospitals in 1857 was 93,239, to the public hospices ,877. In the prefect's report on the city budget for 1860, the appropriation for the beneficent establishments is $2,000,000, which goes toward the support of nearly 18,000 beds. The city supports 1,600 insane persons in provincial asylums, and furnishes outdoor aid or medical attendance to more than 124,000 poor. The number of persons employed by the city in the service of the poor, including 88 clergymen, 321 physicians, 42 surgeons, and 97 midwives, but exclusive of the religious sisters, is 3,682. —In the matter of common schools Paris is inferior to most large towns in the United States; but for educational institutions of a higher order it is deservedly distinguished. Nearly all of them where instruction is imparted by lectures are as freely open to all comers, native or foreign, as the public museums, libraries, and gardens. The 5 combined schools or faculties of the *académie universitaire*, the much changed descendant of the famous old university of Paris, are served by professors ordinary and extraordinary as follows: 21 of theology, 25 of law, 26 of medicine, 19 of letters, and 18 of the sciences. Their lectures are attended by between 7,000 and 8,000 professed students. The college of France has 28 professors of letters, philosophy, and science. The quality of instruction imparted may be guessed from the names of the lecturers, among which have been those of Cuvier and Geoffroy St. Hilaire, Royer-Collard, Cousin, Jouffroy, Guizot, Michelet, and Villemain. Of the special schools peculiarly worthy of mention are: the *école polytechnique*, corresponding somewhat to the American military academy at West Point; the *école des ponts et chaussées*, for instruction in all branches of civil engineering; the *école des mines*, for a thorough instruction in every branch of art and science bearing upon mining operations; the *école centrale*, for the education of civil engineers, architects, and directors of manufacturing establishments; the *école d'état major*, for the education of staff officers for the army; the *école normale*, with 18 professors, for the education of teachers of the higher class; the *école des chartes*, where gratuitous lectures are given by a corps of learned professors on all branches of the curious art and science of palæography; the school of living eastern languages; the school of pharmacy, with a botanical garden and laboratory; the free school of design, mathematics, and ornamental sculpture; the free school of drawing for young women under the direction of Rosa Bonheur; the school of the fine arts, where gratuitous lectures are given by 21 first class professors and practisers of all departments of the plastic arts; the conservatory or academy of music and declamation, with 600 pupils, whose teachers are the best artists of the Parisian stage; the conservatory of arts and trades, the gratuitous courses of whose 17 eminent professors, treating of the application of science to the useful arts, are frequented by studious audiences of intelligent mechanics; 6 schools for the education of Roman Catholic priests, of which the seminary of St. Sulpice with 14, and that of Notre Dame des Champs with 17 directors and teachers, are the principal; and a seminary for the education of Israelite pastors. The 5 imperial lyceums of Louis le Grand, Charlemagne, St. Louis, Napoleon, and Bonaparte, combine in the course of instruction many of the best features of American high schools and colleges. The colleges of St. Barbe and St. Stanislas are high schools organized on a grand scale. The colleges Rollin and Chaptal, as well as the *école Turgot*, are municipal establishments, where the course of study is shaped with special reference to the future career of the scholars in the ordinary paths of civil life. There are 80 large public libraries in Paris, 8 of which are daily open to all comers. The *bibliothèque impériale* is the largest library in the world. It contains more than 1,000,000 printed volumes, 800,000 pamphlets, 150,000 manuscripts, 300,000 maps, charts, and topographical views, 1,300,000 engravings, and a cabinet of coins and medals numbering 150,000 specimens. This invaluable collection is constantly increased by gifts and purchases, and by the action of a law as old as the time of Henry II. (1556), which requires the deposit of a copy of every new work printed in France. The libraries next in importance for their number of printed volumes and manuscripts are those of the arsenal, of the Louvre, the Mazarin, the city of Paris, of the Sorbonne, and St. Geneviève. The large libraries belonging to the schools, to the ministries of state, to the senate and legislative body, are rich in special departments of literature. They are not freely open to the public, but every reasonable application for access to them is granted in that spirit of courtesy and liberality which distinguishes the management of all public Parisian institutions. For an account of the celebrated academies composing the *institut de France*, see ACADEMY. The observatory of Paris has been described as the "head-quarters of astronomic science, a rendezvous of the learned, who seek for or discover planets, calculate eclipses and tides, and edit the *Annuaire du bureau des longitudes*." Its present director is Leverrier, who succeeded Arago. In its amphitheatre the latter delivered his admirable popular lectures on astronomy.—Beside its public establishments, some of the more important of which are mentioned above, there are in Paris about 60 charitable, literary, scientific, and artistic societies. The museums of Paris are among its distinctive features. Those of natural history connected with the *jardin des plantes*, which is the common name for a large zoological as well as botanical garden, are unrivalled in their kind; the scientific museums of morbid anatomy and comparative anatomy belonging to the medical school are remarkable for their extent and completeness; the museum in the Hôtel de Cluny (itself a curious specimen of the architecture of the middle ages, constructed partly upon the foundations of a Roman imperial palace) is consecrated to furniture, arms, and works of art of the middle ages and of the renaissance, and to some earlier Gallo-Roman antiquities; that of the conservatory of arts and trades contains models of old and newly patented machines and tools, together with specimens of mechanical and chemical products, and of natural materials within the domain of industrial processes; in the museum of artillery is a collection of ancient and modern arms of defence and offence, from Indian hatchets to rifled cannon; the mineralogy of France, geographically arranged by her departments, is exhibited at the museum of the school of mines; the numismatic museum at the mint displays the coins and medals struck in France from Charlemagne's time to the present; the typographic museum, at the imperial printing house, contains a curious variety of ancient and modern printing, not the least remarkable of which are the productions of the imperial press, such as the Lord's Prayer in 150 different languages, and copies of *L'imitation de Christ* that seem the perfection of typographic art. The museums of the Louvre, worthily occupying all of that magnificent palace that had been completed by the labors of successive French monarchs from Francis I. to the great Napoleon, are [illegible] in number; of these the most notable are those of painting, of drawings and engravings, ancient sculpture, modern sculpture, Assyrian antiquities, Egyptian antiquities, and Etruscan antiquities, to which are to be added large collections of rare specimens of the ceramic art, of exquisite carved work in wood and ivory, of jewels, &c. The picture galleries contain [illegible] paintings. Other European galleries are richer in the works of certain masters and of special schools, but none of them offers to the practical student, the connoisseur, and the simple lover of art, so comprehensive and instructive a view of all the schools. The galleries of the Luxembourg, occupying a small part of the palace of that name, are hung with 200 paintings by living French masters, by no means a complete exemplification of the present French school of art. The conditions of admission to all these museums are of the most liberal nature. Those of the Louvre and of the Luxembourg are freely open to all comers 6 days, and to artist copyists 5 days in the week. On Sundays and holidays they are thronged by all classes of the population. That taste which seems instinctive with Parisians is thus constantly cultivated. A certain artistic sense of form and color is common to all, and reveals itself on every hand—in the arrangement of goods in the shop windows, in the dress of females of every social class, in most articles of furniture whether for use or ornament, in the decoration of the brilliant café houses and restaurants, in the minor external details of domestic architecture (wanting as that of the present day is in the larger features of a beautiful or, indeed, of any distinctive style), in the laying out of the gardens, and in the purely scenic effects at the theatres. It is by the material revelations of this artistic sense that the attractive charm which Paris exercises upon all strangers is to be explained. There are no means of arriving at an accurate census of the painters and sculptors of Paris; an indication of their number may be found in the fact that of some 1,300 painters whose works were offered and admitted to the biennial Paris *salon* or exhibition of fine arts in 1859, more than 1,000 resided in the capital. It is hardly necessary to add, in view of the conditions of admission to the *salon*, that these were but a fraction of the whole number of unsuccessful applicants and non-applicants for that honor. —There are 28 theatres in Paris, 5 of which are musical, viz.: the grand opera, famous for its ballet and magnificent scenic effects; the *opéra comique*, which is properly the opera of the French; the Italian opera; the *théâtre lyrique*, subordinate to the grand opera; and the *bouffes Parisiennes*, devoted to musical broad farce. At the *comédie Française*, the French theatre *par excellence*, elocution, gesture, historical accuracy of costume, picturesque combination of stage groups, and whatever else contributes to the perfection of histrionic art, are exhibited in unrivalled completeness. This theatre also fills now the place of the ancient royal court, as the model school of French accent and pronunciation. To help to support this and 3 or 4 other theatres, the state makes an annual appropriation of about $300,000. The total receipts of the 19 first theatres of Paris in the year closing with the month of April, 1860, an exceptionally bad year for Paris theatres, amounted in round numbers to $2,070,000. The legally taxed "right of authors," in addition to any sums paid them by virtue of private bargains with the managers, amounted for the same period to $213,000. New works by 234 dramatic authors and 40 musical composers were brought out in the course of that period. The theatres of Paris can, and of a rainy Sunday night do, seat about 30,000 auditors; in the orchestras are 630 musicians, and on the stages are more than 2,000 performers, 700 of whom more or less fitly fill the parts of actors proper, while the rest are choristers and walking characters. Paris offers 150 other roofed or at least laterally enclosed places of amusement, circuses, concerts, café concerts, concert gardens, ball rooms, dancing gardens, and others, with an average daily or nightly attendance of 24,000 persons.—Yet more frequented by the Parisians, one of whose chief pleasures is to meet with more Parisians, and be admired by strangers, are the public squares, gardens, and promenades. A remarkable series of these begins with the exterior gardens of the Louvre, whence lofty colonnaded arched ways give entrance to the grandly beautiful palace court; beyond is the garden of the Place Napoléon, surrounded by the excessively ornate inner façades of the new wings of the Louvre, except on one side, which opens on the Place du Carrousel; this is an immense palace court, whose principal ornament is a triumphal arch, designed after the arch of Septimius Severus at Rome, adorned by 8 Corinthian columns of red marble with bronze bases and capitals, and surmounted by a triumphal car and 4 bronze horses, modelled from the horses of the piazza of St. Mark in Venice. The W. side of this court is enclosed by the main body of the palace of the Tuileries, whose western front, 1,000 feet long, looks on the gardens of the same name, with their flowers, fountains, statuary, orange trees, and groves of horse chestnut trees. Next to these is the finest square in Paris, originally named Place de Louis XV., then baptized as the Place de la Révolution in blood flowing from the guillotine set up there in the reign of terror, and now called Place de la Concorde. It is adorned with balustrades and rostral columns and 8 pavilions surmounted with allegorical figures of the principal towns of France. In the middle of the square, between two magnificent fountains, rises the obelisk of Luxor, a monolith 72 feet in height, first set up in front of the great temple of Thebes 34 centuries ago by the great Sesostris. On the N. side of the place are two fine edifices, each 288 feet in length, with colonnaded fronts resting on a basement of arcades; they are separated by the rue Royale, 90 feet wide, which opens a view of the portico of the Madeleine. To the south and on the left bank of the Seine, crossed here by a noble bridge, are the palaces of the legislative body and of the ministry of foreign affairs, behind which are seen the gilded dome of the Invalides and the spires of St. Clotilde. On the W. side, between two groups in white marble by Coustou, each representing an impatient horse restrained by an attendant, is the entrance to the grand avenue of the Champs Élysées, which is a mile and a quarter in length. The Champs Élysées are planted with trees and laid out in *parterres* profuse with flowering plants and shrubs. Here are cafés, open air concerts, marionette theatres, apparatus for children's games, and a hundred tasteful booths stored with playthings and toothsome refreshments, and on all pleasant days and evenings in the mild season a multitude of old and young, strolling or sporting under the trees, or sitting on the rows of chairs along the sidewalks watching the carriages and horsemen that throng the avenue. For other tastes there are a circus and a panorama; and in close proximity the most brilliant and notorious of Paris dancing gardens, Mabille and the *château des fleurs*. On the Champs Élysées also is the *palais de l'industrie*, originally built for the exhibition of arts and industrial products in 1855, whose ample spaces are now used for the national exhibitions of industry, horticulture, agriculture, and the fine arts, some one or more of which is held there yearly. Midway in its course the avenue spreads into a circular place called the *rond point*, adorned by a large fountain, and thence continues, bordered now by stately houses, to the Place de l'Étoile. Here is the triumphal arch, commenced by the first Napoleon as a monument to himself and the *grande armée*, but only finished by that peace-loving monarch, Louis Philippe. It is the grandest structure of the kind in the world, rising in harmonious proportions from a base of 147 by 73 feet to a height of 162 feet. Its central archway is 45 feet broad and 90 feet high. Its inner walls are inscribed with the names of 384 generals and 96 victories. Its most striking sculptured ornaments are 4 groups of colossal figures in high relief, one of which by Rude, allegorizing the departure of the army in 1792, seems inspired with all the force and passion of that time. Radiating from the Place de l'Étoile are 10 streets and great avenues. One of these is the Avenue de l'Impératrice, which consists of a carriage way, foot walks, and a bridle road, nearly a mile long, and in all 300 feet wide, bordered by continuous gardens, outside of which on either hand is again a carriage road, and yet beyond are gardens and villas. It leads to the Bois de Boulogne, an extensive park just outside the fortifications, laid out since 1852 in the modern style of landscape gardening. Its winding roads, mazy paths, and shaded groves are the resort of the high, fashionable, and doubtful worlds, in fine equipages and on blood horses, and of all the other worlds of leisure of Paris, in *voitures de place*, on hired hacks, and on foot. Its largest artificial lake is ¾ of a mile in length. A fine race course and the zoological and botanical garden of the society of acclimation are embraced within its limits. At the opposite extremity of Paris is the Bois de Vincennes, recently embellished with new plantations and artificial lakes and streams, for the use of the inhabitants of the eastern quarters of the town. It is noticed of Paris, as of London and several other large cities, that its wealth and fashion tend westward; the faubourg St. Germain, the quarter of the aristocracy of ancient birth, on the left bank, and the faubourg St. Honoré and the Chaussée d'Antin, the quarters of the newer nobility and of the aristocracy of wealth, on the right bank of the Seine, are on the western side of the town.—The cemeteries of Paris are outside the octroi wall, the interment of the dead being prohibited within the city. The principal are those of Père la Chaise, covering about 100 acres on the E. side of the city, beautifully laid out, and planted with cypress trees (see CEMETERY); Mont Parnasse, to the W. of the observatory, in which are buried the remains of many persons executed for political offences; and Montmartre, on the slope of the eminence from which it receives its name.—The most attractive and peculiarly Parisian promenade is the *boulevard intérieur*. It is a continuous street, divided only by name into 12 parts, that follows for 3 m. the irregular line of what were once the fortifications, *boulevards* or bulwarks, on the northern side of the ancient city. The 4 westernmost and finest portions of this magnificent and incomparable street are the Boulevards de Montmartre, des Italiens, des Capucines, and de la Madeleine. On them, or close at hand in the streets opening upon them, such as the rue Royale, the rue de la Paix, the Chaussée d'Antin, rue Lafitte, the rues de Vivienne and de Richelieu, are shops with the costliest silks, rarest jewels, and finest works of art, tastefully arranged; restaurants with the dishes most provocative of appetite and cafés wainscoted with mirrors; the great banking houses; the principal opera houses and the best theatres; the most fashionable churches, equipages, and pedestrian loungers of the town. "France is the centre of civilized nations, Paris is the centre of France, and the Boulevard des Italiens is the centre of Paris," says an enthusiastic Parisian. The Boulevard Sébastopol is a broad business avenue and air channel 3 m. long, crossing the Seine and the island of the Cité in its straight course from north to south. The somewhat monotonous lines of its 6-storied, balconied, light-colored new stone houses are frequently relieved by gardens, fountains, places, monumental façades of public buildings, and ancient edifices of a higher architectural style. The *boulevards extérieurs* are an uninterrupted series of broad streets planted with trees of an aggregate length of 17 m., following the line of the old *octroi* wall and surrounding the city as its limits existed up to 1860. The passages are great resorts for loungers. They are galleries with glazed roofs and marble pavements, lined with shops and cafés. The most elegant of them, as the passages des Panoramas, Jouffroy, Vivienne, de l'Opéra, Choiseul, Colbert, du Saumon, &c., are, especially at night, among the most cheerfully brilliant of Paris phenomena.—Paris is eminent among modern cities for its monumental edifices. The municipality alone has at its charge the preservation and embellishment of more than 700. Any thing like a detailed description even of the most remarkable of them is precluded by the limits of this article. To convey a notion merely of the extent of the united palaces of the Louvre and the Tuileries, it will be enough to say that the greatest width of this immense pile of building is 1,008 feet; that the distance from the eastern colonnade to the western front is half a mile; that its roofs cover, beside the museums of art mentioned above, a library of 80,000 volumes, quarters for several regiments of troops beside the *cent gardes*, the offices and private apartments of the minister of state, the private and state apartments of the emperor and his household, the imperial chapel and theatre, and palatial stables for imperial horses. The Élysée Napoléon, now an imperial palace, was built early in the 18th century by a private nobleman; was then purchased and for a time occupied by Mme. de Pompadour, who added to its pleasant garden a part of the Champs Élysées; was afterward the residence of ambassadors extraordinary sent to the court of France; then fell into the possession of the famous banker Beaujon, and passed from him to the duchess of Bourbon; was used as a government printing office during the early years of the revolution, and was next sold to private speculators, who converted it to a place of public amusement; was afterward bought and occupied by Murat, till he left it to become king of Naples, when it fell again into the hands of government, and was a residence at different times of the first Napoleon. It has been inhabited by the duke of Wellington and the Russian czar, Alexander I.; Louis XVIII. gave it to the duke of Berry, after whose assassination it descended to the duke of Bordeaux; after Dec. 1848, it took the name of Élysée Nationale, and became the official residence of the president of the republic, who, as he changed his condition, changed the often changed name of this pretty, habitable-looking palace to its present style. It is destined by him to be the residence of the prince imperial. The first Napoleon destined for the residence of the king of Rome the palace of the Quai d'Orsay; Charles X. had work done upon this magnificent edifice, destining it for the place of French national industrial exhibitions; Louis Philippe completed it; the imperial council of state and the imperial court of treasury auditors now occupy it. By its side is the ornate little palace of the legion of honor, built in 1784 by the prince of Salm, who was guillotined in 1794, when the palace was disposed of by lottery, a journeyman hair dresser winning the palatial prize. The Luxembourg palace is remarkable for its combination of beautiful forms with solidity of construction. Beside the admirable but greatly incomplete gallery of the works of living French artists, this palace contains the assembly room, library, and chapel of the senate, a gaudily decorated throne room, and the apartments of the grand referendary of the senate. The gardens belonging to the Luxembourg are not inferior to that of the Tuileries. The hotels of the ministries have the grandeur of palaces; they contain the offices belonging to each department as well as the residences of the ministers. The private palace of Prince Napoleon in the avenue Montaigne is a minutely studied reproduction in architecture and decoration of a Pompeiian house. The quays of solid masonry that bank in the river for 5 m. on either side, and the 21 bridges of stone or of iron, some of which are admirable specimens of architecture, are among the notable structures of the city. The prospect commanded from several of the bridges hardly has its equal, for mpressive grandeur and beauty, among urban views. The bourse or exchange is a noble edifice, 212 feet in length by 126 feet in width. It is surrounded by a range of 66 Corinthian columns, supporting an entablature and masked attic, and forming a broad covered gallery which is approached by a flight of steps exending across the whole front. These are daily ascended by about 3,500 devotees of Plutus. Near the bourse is the bank of France; it has branches in the departments and in Algiers, and has the exclusive privilege of issuing bank notes in France. Paris is nearly as much the financial as the political centre of the country. It is the seat of the administrations of the 5 grand railways, which, with the numerous branches they send out on their course from the metropolis to the limits of France, cover the land with a network of iron. The *crédit mobilier*, the *crédit foncier*, and other establishments whose financial or industrial operations are carried on in all parts of France and extend to foreign countries, have their direction bureaus at Paris.—Vauban said as long ago as the time of Louis XIV.: "This city is to France what the head is to the human body; it is the true heart of the kingdom." A witty foreigner has said in our time, alluding to the supremacy of the capital: "One might as well speak of what a man's legs think as of what the provinces think." It is the chosen residence of literary Frenchmen, and is one of the largest publishing cities of the world, for books in all departments of literature, for maps, music, and engravings. Of the 12,000 literary works of all kinds published in France in 1860, nearly all of any literary or mercantile importance were published in Paris; the same observation is true of 2,900 musical compositions, and of 2,700 single pieces, connected series, albums, &c., of engravings, lithographs, and photographs. Of periodicals of all sorts published in Paris there are more than 200; 15 of these are daily political newspapers.—There are no later authoritative statistics of the manufactures of Paris than those contained in the admirable report by Horace Say, published in 1851, of the results of the official inquiry set on foot by the chamber of commerce in 1847. Since that time the annexation of the *banlieue* has brought within the city limits a large number of manufacturing establishments, the population has risen from 1,000,000 to almost 1,900,000, and industrial enterprise has been greatly developed. With these three facts kept in view, the figures of Say are still worth regarding. The number of trades then in Paris was 325, practised by 6,500 employers or independent workmen, and by 205,000 adult male and 112,800 adult female operatives, beside 16,600 boys and 7,700 girls. The main branches of manufacture were: those relating to clothing of all sorts, with an annual product of about $48,200,000; those for preparing food of all kinds, $45,400,000; those of building and architecture, $29,000,000; those of furniture, $27,400,000; jewelry, $18,000,000; hats, $3,200,000; gloves, $2,800,000; works in the useful metals, $20,727,000. The sum total of annual production amounted to $292,725,000. A new industrial census of the city, conducted under the auspices of the chamber of commerce, was commenced in 1860. It will require 2 or 3 years for its completion and the publication of its results. Of these results nothing can as yet be accurately estimated; but it is not very hazardous to conjecture that the total of manufactured values in 1860 is nearly twice that presented by Say. Paris is celebrated for its jewelry and other goldsmith's work, watches, and ornamental bronzes; its boots, shoes, and gloves; its pianofortes, paper hangings, perfumery, artificial flowers, articles of female dress, and military equipments. Its mathematical, optical, and surgical instruments have a deservedly wide reputation for beauty and accuracy. The products of the Gobelins manufactory of tapestry and carpets do not enter into commerce. The manufactory belongs to government, and like the porcelain factory at Sèvres is not a rival but a beneficial model and pioneer experimenter of private enterprises. The government tobacco factory in Paris furnishes about one fifth of the snuff, cigars, and smoking tobacco consumed in France, to an annual value of nearly $30,000,000. It appears by Say's report, that of the 65,000 master workmen, there were only 7,117 who employed more than 10 operatives, while there were 32,583 who either worked alone or employed but one man. A similar characteristic trait is observable in the method of conducting commerce in Paris. The manufacturer and retail merchant are often the same person. But if industrial and commercial enterprises are generally conducted on a smaller scale than in London and New York, the proportion of capital to credit is larger, business operations are safer, and failures are more rare. The traditional caution of Paris commercial habits is, however, gradually wearing away. In the year ending June 30, 1859, there were formed 1,477 commercial and joint stock companies, representing an aggregate capital of $7,764,000. The number of bankruptcies in the same period was 1,062. The largest demand on the manufacturers and merchants of Paris comes from the city itself. Next in order of value is its trade with the rest of France; then follow its important commercial relations with foreign countries. The Seine, the canals joining that river to the waters of the Rhone, Rhine, and Loire, together with the 5 grand trunk railways and their branches, connect the metropolis with every part of the country, with the staple towns of continental Europe, and with the ports of the Atlantic, the Mediterranean, and the North sea. The value of foreign and colonial goods entering into Parisian commerce in 1859 was $14,620,000, exclusive of platinum, gold, silver, and copper, coined and uncoined, to the amount of $13,980,000. The first 6 classes of imported merchandise were: coffee, $1,930,000; hides, $1,560,000; sugar, $1,280,000, of which $900,000 was colonial; Cashmere shawls, $870,000; peltry, $810,000; and cacao, $680,000. There were imports in the same period to the value of $9,300,000, belonging to what is styled *commerce général*, *i. e.*, imports which arrived at Paris in transit, or were warehoused, the greater part of which finally enter into the special commerce of the city. The exports of Paris in 1859 amounted to $56,400,000, exclusive of platinum, gold, silver, and copper, coined and uncoined, to the value of $19,900,000. The principal exports, comprised under 46 general titles, are exhibited in the subjoined table, the values being given in round numbers:

Kinds of merchandise.	Value of exports.
Silks	[illegible]
Woollens	[illegible]
Haberdashery and buttons	[illegible]
Clothing and linen drapery	[illegible]
Articles fabricated of skins and leather	[illegible]
Pasteboard, paper, books, and engravings	[illegible]
Prepared skins	[illegible]
Cotton fabrics	[illegible]
Fancy articles (*articles de Paris*)	[illegible]
Goldsmiths' and jewellers' work	[illegible]
Modes and artificial flowers	[illegible]
Perfumery	[illegible]
India-rubber goods	[illegible]
Musical instruments	[illegible]
Ornamental feathers	[illegible]
Clocks and watches	[illegible]
Gold in bars and leaf	[illegible]
Cudbear	[illegible]
Common carmine	[illegible]

Other miscellaneous articles, not included in any one of the important groups enumerated above, amounted altogether to the value of $2,279,000, and to 4 per cent. of all Paris exports. —The people of Paris consumed during the year 1858, of wine, 32,250,000 gallons; of alcoholic liquids, 1,780,000 gallons; of cider, perry, and beer, 7,049,856 gallons; of butchers' meat, 205,518,877 lbs.; of other solid animal food, 17,451,084 lbs.

PARIS, also called ALEXANDER, a mythical Trojan prince, second son of Priam and Hecuba. His mother having dreamed during pregnancy that she brought forth a flaming torch which set fire to the whole city, he was immediately after his birth exposed on Mt. Ida, where a she bear suckled him for 5 days. A shepherd then took him home and brought him up as his own child. He grew up handsome, accomplished, and valiant, and when a dispute arose between Juno, Minerva, and Venus for the golden apple inscribed: "To the fairest," which Eris (strife) threw among the assembled divinities, the beautiful shepherd Paris, who was then tending his flocks on Mt. Gargarus, was selected by Jupiter to decide the quarrel. He awarded the prize of beauty to Venus, who promised him in return the fairest of women for his wife. Afterward he learned the secret of his parentage, was received by Priam as his son, and hearing of the surpassing charms of Helen, the wife of Menelaus, king of Sparta, sailed to Greece with a fleet, and, aided by Venus, carried her off to Troy. The noblest chiefs of Greece, who had formerly been her suitors, took arms with Menelaus to avenge this outrage, and thus began the Trojan war. Paris showed little of his accustomed courage in the siege, and was oftener found enjoying himself with music and the society of women than fighting before the walls. He twice met Menelaus in conflict; once he fled, and again he was defeated, but was borne away by Venus. He is said to have slain Achilles, or according to some accounts Apollo assumed his form in order to kill that hero. Being wounded by Philoctetes with an arrow of Hercules, Paris repaired to his long deserted wife Œnone, daughter of the river god Cebren, whom he had married before the abduction of Helen; but she refused to heal him, and he returned to Troy. Œnone repented and followed him with remedies, but being too late to save his life killed herself in despair.

PARIS, John Ayrton, an English physician and writer on medical science, born in Cambridge, Aug. 7, 1785, died in London, Dec. 24, 1856. He commenced the study of medicine at the age of 14, subsequently entered Caius college, Cambridge, where he was graduated M.D. in 1808, and in the same year engaged in the practice of his profession in London, succeeding Dr. Maton as physician to the Westminster hospital. Soon afterward he settled in Penzance, Cornwall, where his practice was lucrative. He devoted considerable time to the study of the natural sciences, and founded the royal geological society of Cornwall. In 1817 he returned to London and commenced courses of lectures on the materia medica and the philosophy of medicine, the matter of which was subsequently reproduced in his "Pharmacologia" (8vo., London, 1819; 9th ed., rewritten, 1843). In 1844 he succeeded Sir Henry Halford as president of the London college of physicians, which position he retained until his death. He was the author of a "Treatise on Diet" (8vo., London, 1827), a memoir of Sir Humphry Davy, and a popular little work published anonymously, entitled "Philosophy in Sport made Science in Earnest." In conjunction with J. S. M. Fonblanque, he published a work on "Medical Jurisprudence" (3 vols. 8vo., London, 1823). He also wrote upon the geology and soil of Cornwall, and was an accomplished chemist. During his residence in Penzance he invented the "tamping bar," an iron implement coated with copper, which enabled the Cornish miners to pursue their labors without danger of explosion from the sparks, evoked by the ordinary iron bar, igniting gunpowder or the inflammable gases of the mines.

PARIS, Matthew (Lat. *Matthæus Parisius*, or *Parisiensis*), an English chronicler, born about 1197, died in 1259. He was a Benedictine monk in the monastery of St. Albans; distinguished himself as a theologian, orator, poet, painter, and architect; and was sent by the pope on a mission of reformation to the monasteries of Norway, and Henry III. of England held him in great esteem. He had intercourse with the most eminent men of his age, and was thus enabled to gather valuable materials for the history of his adopted country. He wrote a universal chronicle, the 1st part of which has, perhaps, been placed at the head of that of Matthew of Westminster, while the 2d, to which alone his name has been affixed, comprises, under the title of *Historia Major*, the history of Great Britain from 1066 to 1259. He made use of the chronicles extant in his monastery; and his account of the first 35 years of the 13th century especially is compiled from the "Flowers of History" of Roger of Wendover. The *Historia Major* was first printed by Archbishop Parker in 1571. The best edition is that of Dr. William Watts (fol., London, 1640; reprinted in Paris in 1644), with an addition continuing it to 1273 by William Rishanger. An English translation of this history by the Rev. J. A. Giles forms 3 vols. of Bohn's "Antiquarian Library." An abridgment of it, which Paris himself called *Historia Minor*, of which the autographic MS., ornamented with illuminations and maps, is preserved in the British museum, is now (April, 1861) in press, edited by Sir Francis Madden. Matthew Paris also left the "Lives of the two Offas, Kings of Mercia, and of 23 Abbots of St. Albans," beside *Additamenta* to his history included in Dr. Watts's edition.

PARIS, Plaster of. See Gypsum.

PARISH (law Latin, *parochia*). In ecclesiastical law, this word has always meant, in England, a certain extent of territory, or "circuit of ground," committed to the spiritual charge of one parson, or vicar, or other ecclesiastic having cure of souls therein. All England is said to be divided into parishes, and they number about 10,000. The origin and early history of parishes are quite uncertain. Camden says they began in England about the year 630. Sir Henry Hobart refers them to the council of Lateran in 1179. Selden places their origin between these periods. It seems, however, that about 1,000 years ago, while every man was bound to pay tithes to the church, he paid them to whatever ecclesiastical division of the church he preferred. At least, if there was any law determining his choice in this respect, it is not now known; and Blackstone says expressly that the payment was arbitrary, every man paying where he pleased. But a law of King Edgar, about 970, seems to confine the payment to the parish to which the man belonged; and so it has remained ever since.—In the United States the word parish is of frequent use, but it does not mean precisely the same thing as in England, nor does it mean the same thing in all the states. The legal importance of parishes in England depends upon the fact that the rector of each parish is entitled to the tithes of agricultural produce within it, except so far as some qualification of this rule has been made by comparatively recent statutes. In this country tithes were never paid, or rather no legal obligation to pay them ever existed. But, from the first settlement of the country, we have had everywhere associations and bodies corporate or organized for ecclesiastical purposes, and these have been generally called parishes. In New England they were originally the same as towns; that is, the persons composing a town, and acting as a town in civil and political matters, also acted as one body in religious or ecclesiastical matters; and the parish had therefore the same territorial limits as the town. Afterward, as the towns grew more populous, they were divided for ecclesiastical purposes into different parishes, which were still territorial and were contained within local limits. There are many such parishes now in most of the states. At length, however, as a diversity of religious sentiment became developed, all religious opinions standing on the same footing in law, parishes began to be formed of persons associated by similarity of religious sentiment and not mere nearness of residence, and therefore with little or no reference to their place of abode. These were called poll parishes, in distinction from territorial parishes. They are numerous everywhere, and in the large cities may be considered as having taken the place of territorial parishes, which are almost unknown there.—In Louisiana, the word parish is used to designate a district separated and defined by local limitation for merely civil and political purposes. These districts are analogous to counties in some states, and to townships in others.

PARISH, Elijah, an American clergyman and author, born in Lebanon, Conn., Nov. 7, 1762, died in Byfield, Mass., Oct. 15, 1825. He was graduated at Dartmouth college in 1785, studied theology under the Rev. Ephraim Judson of Taunton, Mass., and in Dec. 1787, settled as pastor of the Congregational church at Byfield, Mass., where he remained the rest of his life. Theologically he belonged to the party called in his day the Hopkinsian. He took a strong interest in politics, and in 1810 preached the annual election sermon, in which he so bitterly inveighed against the policy of the government, that the legislature refused to ask it for publication. It had, however, a large circulation. Beside a number of sermons and orations on various occasions, he published a "Gazetteer of the Eastern and Western Continents," in conjunction with the Rev. Dr. Morse (1802); a "History of New England" (1809); "System of Modern Geography" (1810); "Memoir of the Rev. Dr. Eleazer Wheelock, First President of Dartmouth College," in conjunction with the Rev. Daniel McClure (1811); and "Sacred Geography, or Gazetteer of the Bible" (1813). A volume of his sermons, with a brief memoir of his life, appeared in 1826.

PARK, originally in England a portion of a forest enclosed for keeping deer, trapped or otherwise caught in the open forest, and their increase. Grants for this purpose were made by the sovereigns to the nobles. Rich land of an open pastoral character, with trees sparingly distributed and having broad stretches of greensward pasturage, would naturally be chosen for this purpose; and this character would be intentionally increased by felling a portion of the trees, and unintentionally by the effects of the browsing of the confined deer. Hence the word is used to describe this sort of scenery. Parks of this character at length became very numerous. In the reign of Henry VII. there were in Kent and Essex alone 100 each of several miles in circumference. The earl of Northumberland possessed 21 in three of the northern counties, containing 5,[illegible] head of deer, beside others in the south. At that time, tenants sufficient to cultivate the land being difficult to obtain, parks were enclosed from motives of profit. As the country became more densely occupied and the landlords more numerous, sites for residences were generally taken within the parks for their proprietors. Thus the mansion was originally fitted to the park, not the park to the mansion. Parks at length came to be considered luxurious appendages to the dwellings of the rich, and to be formed and planted for this purpose. There yet remain a large number of private parks of considerable size in England. There are more than 50 in the single county of Warwick, each from one to 5 m. in diameter. Most of these are open to the public with some reasonable restrictions, and in many cases the whole people of the neighboring farms and villages have rights of way in footpaths through them. Not unfrequently parish churches are situated in the midst of old private parks. Most of the parks formed and held for the king's use came gradually to be considered in a measure as public grounds. Even earlier than the reign of George II., the use of the park of St. James in the suburbs of London had been so long enjoyed and was so highly valued by the people, that when the queen asked what it would cost to transform it to a garden, suitable to be attached to the palace which fronts upon it, closing it to the public, Horace Walpole says that his father replied: "Only three crowns," meaning a revolution. As England has advanced from feudalism, and the power of the people has increased, the royal parks have more and more been adapted to the wants of the citizens.—Almost every large town in the civilized world now has public pleasure grounds in some form. Those of London are the following: Kensington gardens (262 acres), Hyde park (389), Green park (55), St. James's park (59), Regent's park and Primrose hill (473), Victoria park (248), Greenwich park (185), Battersea park (175), and Kennington park (35). The first four are in a chain (though not at all connected in plan), being partly separated by streets. There are also a great number of small pleasure grounds, termed squares, comprising about 1,200 acres. Beside these there are several large royal parks and grounds in the vicinity of London, much resorted to by its inhabitants; for instance, Windsor (3,800 acres), Hampton Court and Bushy (1,842), Richmond (2,468), and Kew (684). These can all be reached in less than an hour from the central parts of London, as can Epping forest, and several large commons, which are equally pleasure grounds for all the people. Thus, there are of free public pleasure grounds, within the town, above 1,[illegible] acres, and suburban at least 10,000. In addition there are several noblemen's parks which are a a measure open to the public, and the grounds of societies, as the horticultural and the crystal palace, to which the public are admitted on payment of a gate fee. The crystal palace company's grounds comprise 200 acres, laid out by Sir J. Paxton, and 50,000 visitors have been in them at one time. The number ordinarily using the public parks of London has not been accurately ascertained, but on certain Sundays when music has been performed more than 100,000 persons have been counted at the gates of Victoria park in a day. The largest number counted was 130,000 in a day, in 1857. The fashionable drive of London is the Ring road in Hyde park; it is about 3 m. in length, and varies from 27 to 60 feet in width, the part most used (between the principal entrance and the Serpentine) being 36 feet. There is another drive a mile in length in Hyde park, which is also 36 feet wide. The fashionable riding course of London is in the same park, and is popularly called Rotten Row, a corruption of *la route du roi*, or the king's road, its official name; it is 90 feet wide, and a mile in length. Kensington gardens, Green park, and St. James's are only skirted by carriage roads, and there is but little carriage road in either of the other metropolitan parks. That of Victoria park is but 22 feet wide, and seldom crowded.—Phœnix park at Dublin (1,752 acres) is a fine upland meadow fringed and dotted with trees. In its natural character it is the best public park in the world, but it is badly laid out and badly kept, being much larger than the town requires or than government can afford to maintain for it. Birkenhead park is a piece of ground of 185 acres in a suburb of Liverpool, and is surrounded by villas the grounds of which connect with it. Though small, it is by its admirable plan the most complete, and for its age the most agreeable park in Europe. It was designed and its construction superintended by Sir Joseph Paxton and Mr. Kemp. Birmingham, Manchester, Bradford, and other manufacturing towns of Engand have each recently acquired parks by subscriptions of citizens or by joint stock companies formed under the limited liabilities act. To hat at Birmingham a charge of a penny is made for entrance, and this affords a fund by which, after the payment for improvements and maintenance, the cost of the land is being rapidly defrayed; as soon as paid for the admission will be free. At Halifax an admirable park has been formed and given outright to the own by a benevolent citizen. Derby is provided in the same way with an arboretum. Most of the small towns of England have some place of general promenade, as for instance the old city walls and the river bank above the own at Chester, the common and the old casle grounds at Ludlow, the castle garden and he cathedral grounds at Hereford, the river banks at Lincoln, and the cathedral green at Salisbury and Winchester. These consist in each case either of a long, broad walk, pleasantly bordered and leading to fine views, or a few acres of smooth turf well shaded, where, after church on Sunday or on a fine summer evening, considerable numbers of the largest classes of the people may always be seen in their best presentation of themselves. Most villages in England have a private park near them which the people are allowed to use; when this is not the case, it is rare that even a hamlet is found that has not at least a bit of cricket ground or common, where, on benches under a patriarchal oak or elm, the old people meet to gossip and watch the sports of the vigorous youth. —The old towns of the continent have generally provided themselves with pleasure grounds by outgrowing their ancient borders of wall and moat and glacis, partly razing the wall, filling part of the moat, and so, with more or less skilful arrangement of the materials, making the groundwork of a garden in the natural style. This is done admirably at Frankfort, Leipsic, and Vienna. Elsewhere, simple broad roads bordered with trees have been laid out upon the levelled ramparts, as is the case with the circuitous portion of the boulevards of Paris. The boulevards of Brussels are simply straight streets about 125 feet wide, and with in some cases different classes of communications running through their length, each divided from the other by a row of trees; one, for instance, has on the outside a gravelled walk 21 feet wide, next a macadamized carriage road 36 feet wide, next a soft gravelled horseback road 21 feet wide, next a paved business road 30 feet wide, and then another walk, which is perhaps flagged for rainy weather. Town houses of a good class front upon this boulevard, removed from the too close observation of promenaders by the interposition of small private gardens or forecourts. Brussels also has an old park and two botanical and zoological gardens.—The newly formed Avenue de l'Impératrice at Paris is a straight promenade, between Paris and the Bois de Boulogne. It consists of a carriage way 60 feet wide, there being a pad for saddle horses on one side and a gravelled walk on the other, each 40 feet wide, and separated from the carriage road by a simple wooden hand rail; on the outside of all is a slope of turf planted in the rear with groups of trees and shrubs in the natural style; back of this, on both sides, a narrow road adapted to heavy traffic is carried, which also gives access to a line of detached villas, the grounds of which, being outside of all, form the background of the view from the promenade. The Bois de Boulogne is an ancient royal forest of some 2,000 acres, in the suburbs of Paris. The soil is naturally sandy and poor, and the scenery flat and uninteresting. The trees are generally thickly grown, stunted, and weak. Several departmental roads, broad, straight, paved wagon ways, pass through it. Except its vicinity to Paris, and the refreshing wildness of a large and entirely untrimmed forest, it offered as late as 1855 but little to attract a visitor. It was, however, already a favorite resort of the Parisians, and Napoleon III. saw in the very neglect to which it had been abandoned the opportunity of making one of those sensations, to the frequent succession of which he owes so much of his popularity with his subjects. The coarse silicious soil, although unfavorable to fine old trees, is much less costly to handle than better earth, and its form may be remodelled with ease and rapidity. Good roads are cheaply graded in it, and the materials of a sufficiently firm superstructure for so porous a base may be had on the spot by simply screening its pebbles; for the same reason scarcely any artificial drainage, so important in heavy soils, is necessary. There were some large open meadows in the vicinity reaching to the banks of the Seine. All these circumstances were skilfully taken advantage of, and the various opportunities they afforded for the purpose in view adroitly combined. Possession was obtained of the meadows, and roads cut through the old wood in such a way as to lay open all that was most agreeable in it, at the same time bringing its close scenery before the visitor in rapid alternation with the open expanses of the meadows. Long and narrow lakes, the largest having two long and narrow islands in the midst of it, were excavated, and the excavated material thrown into hillocks along the shores. Thus, with but a very short removal of the light material, a very rapid change of scenery, and this in views of no inconsiderable distance, was effected. Rocks of soft stone were then selected at Fontainebleau, split into fragments convenient for transportation, floated down the Seine till opposite their intended site, and then moved to the banks and hillocks of the lakes and put together again in their original form. This, with an addition of artificial rock, made chiefly of water cement, and an admirable planting of evergreens, furnished bits of really picturesque scenery. Each of these pieces of rock-work, however, is only excellent in itself; they are rather studies of rock pinned against the landscape of the wood than naturally incorporated with it. The principal rock-work is much more like an operatic fairy scene than any thing in nature; and as its great size prevents it from being regarded as puerile or grotesque, like Chinese garden scenes, it may be considered to have been conceived in an original style to which the term romantic may be rightly applied. In its way it is admirably done. It contains 58,015 cubic feet of rock, and, with the reservoir of water behind it, cost upward of $80,000. It furnishes a grotto through which during promenade hours a subterranean stream passes, forming at the mouth a cascade 82 feet in breadth and 27 in depth of fall, and using 176 gallons of water each second when in full flow. The water for this cascade, for the lakes, and for the sprinkling of the ground, is chiefly diverted from aqueducts constructed for the general supply of Paris. Some is obtained from the Seine by a steam pump, and an Artesian well is under construction especially for the supply of the wood. All the above works, commenced in 1855, together with a race course and a great number of rustic architectural structures, the planting of 420,080 trees and shrubs, of which 1,550 were too large to be lifted by hand, and a general improvement of the surface throughout the wood and meadow, had cost, at the end of the year 1858, $1,414,000; and no money ever better effected the object of its expenditure, nothing else done under the auspices of the present emperor being regarded by all classes of the people of Paris with such universal admiration and satisfaction. The Bois de Boulogne contains, with the meadow, 2,158 acres, thus divided: wood, 107 acres; open turf, 675; water, 74; roads, 265; nurseries and flower beds, 71. The length of carriage road is 86 m., varying from 24 feet 6 inches to [illegible] feet 8 inches in width; of bridle road 7 m., generally 16 feet in width; of walks 16 m., generally from 8 to 10 feet in width. Much of the wood is still in an unimproved state.—The Bois de Vincennes is a close natural forest on the opposite side of Paris from the Bois de Boulogne, the improvement of which in a manner similar to that of the latter was commenced some years ago, but has been discontinued. It encloses a vast plain used for heavy gun and shell practice, drilling in field fortification, and manœuvres on a large scale.—The garden of the Tuileries with the Champs Élysées forms the most magnificent urban or interior town promenade in the world. Its central feature is an avenue of horse chestnuts, which leads straight from the clock tower of the palace, through the Place de la Concorde, the Champs Élysées, and the triumphal arch, to the bridge of Neuilly, a distance of 3 m. In its centre, on the Place de la Concorde, stands the obelisk of Luxor, with fountains near it, and there are at different points other fountains which give brilliancy to its vista. On either side in the gardens are groves, shrubberies, and parterres of flowers; and in the Champs Élysées gay coffee houses, concert halls, and booths for the exhibition and sale of playthings. The garden of the Luxembourg is another interior promenade of Paris. It is also in the formal style, with a central avenue, groves, and flower beds, music and coffee houses, but is especially notable for its rose garden; it is about a mile in circumference. Both gardens are open to the public, and in fine weather an immense crowd of all classes of the people daily make use of the privilege. At certain hours thousands of children, attended generally by their nurses, may be found in them at play.—The interior pleasure grounds at Vienna have been already mentioned. Its principal rural promenade is the Prater, the chief feature of which is a straight carriage road, over a mile in length, with a walk on one side and an equestrian pad on the other. It contains near the town a great number of offee houses and play houses; but being 5 m. n length, considerable portions are thoroughly ecluded and rural. Before the recent improvements of the Bois de Boulogne it was the nost frequented park in the world, all classes of the Viennese, from the emperor to his most umble subject, resorting to it at certain seasons lmost as if it supplied a necessity of life. The nglish garden at Munich was laid out under he inspiration of Count Rumford, by the Freierr von Skell, and its scenery, in the English tyle, is more agreeable than that of any other arge public park on the continent. It is about 4 n. long and half a mile wide. The Thiergarten t Berlin contains over 200 acres of perfectly flat and, chiefly a close wood, laid out in straight oads, walks, and riding paths. Its scenery is ninteresting. The Prussian royal gardens of ans Souci, Charlottenburg, and Heiligensee re all extensive grounds, the two former in nixed, the last in natural style. The public gardens of Dresden, Stuttgart, Hanover, Brunswick, Baden, Cassel, Darmstadt, Gotha, Weimar, Worlitz, Schwetzingen, Töplitz, Prague, and Hamburg, are all worthy of mention. Coffee houses are important adjuncts of all the German public gardens. The refreshments furnished are generally rather coarse, but of a wholesome sort, and the prices very moderate. Many families habitually resort to them for their evening meal, especially when, as is frequently the case, there is the additional attraction of excellent music furnished by the government. The gardens of Antwerp, the Hague, and Warsaw are also remarkable.—The famous summer gardens of St. Petersburg are not extensive, being but half a mile in length by a quarter in breadth, and formal in style. They contain very fine trees, are rich in statuary (boxed up in winter), and are the most carefully kept public gardens in the world, so that it is said a policeman watches every leaf to catch it, if it falls, before it reaches the ground. In the exceeding luxuriance, freshness, and vigor of the plants and flowers, and in the deep greenness of the turf, this care finds its reward. During the evenings of the short summer the garden is crowded with loungers, and it is here that the ancient annual wife fair is held; marriageable girls, tricked out with every evidence of wealth in trinkets which their parents can manage to obtain, standing for hours together, for the express and avowed purpose of affording an opportunity to those wanting wives to make their selection. The more fashionable promenade of St. Petersburg is in the gardens of Catharinehoff, where on the 1st of May "all St. Petersburg" turns out, and there is an endless procession of carriages headed by that of the emperor. The gardens are full of bowling alleys and restaurants. Many of the islands of the Neva contain pleasant gardens, both public and private, their chief distinguishing characteristic being the abundance of glass and the success with which exotics are cultivated. One of the most remarkable gardens in the world is that of Tzarskoe Selo, in which is the residence of the imperial family, about two hours' ride from St. Petersburg It consists of about 350 acres of diversified scenery, wooded and open, and contains, beside the palace, temples, banqueting houses, and theatres, a complete village in the Chinese style, a pyramid and obelisks in the Egyptian style, a Turkish mosque, a hermitage, and numerous monuments of military and other achievements. Notwithstanding this great and incongruous variety of artificial objects, beautiful and secluded rural scenery is not wanting. The keeping of the grounds employs 600 men, and costs $80,000 per annum.—Stockholm has a great variety of delightful waterside rural walks, and the chief object of pride with its people is the Djurgard, or deer park, which is a large tract of undulating ground about 3 m. in circumference, containing grand masses of rock and fine old trees. It is beautifully kept. The Haga park, also at Stockholm, is very picturesque in character, and has the peculiarity of natural water communications between its different parts and the city, so that it is much visited in boats. The environs of Copenhagen contain many grounds of public resort, but the notable promenade of the city is the royal deer park (Dyrhave), a noble forest. In the midst is a large green where a great annual fair is held.—In all the Italian cities, the chief public rural resorts are gardens attached to the villas of ancient noble families. The *cascine* of Florence are pastures of the ducal dairy, on the banks of the Arno, passing through which are broad straight carriage drives. These contain little that is attractive within themselves, but command delicious views. At a space where the different roads concentrate, a band of music usually performs at intervals during the promenade hours; and it is the custom for carriages to assemble just previous to the commencement of each piece of music, and rapidly disperse at its end, taking a short drive and returning. The fashionable carriage drive of Rome is on the Pincian hill, which has little natural attraction except in its magnificent distant views. At Naples the fashionable world turns out in carriages upon a broad street called the Riviera di Chiaja, near the bay, but separated from it by the public garden of the Villa Reale, the length of which is about 5,000 feet, breadth 200. The garden is partly in the Italian and partly in the natural style; but with the bay of Naples to look out at, the visitor finds little in its scenery to hold his attention.—Most Spanish and Portuguese towns, and towns founded anywhere in the world by the Spanish and Portuguese, are provided with a place of promenade under formal avenues, to which at certain hours custom brings the ladies in open carriages and gentlemen on foot or horseback.—In the United States there is, as yet, scarcely a finished park or promenade ground deserving mention. In the few small fields of rank hay grasses and spindle-trunked trees, to which the name is sometimes applied, the custom of the promenade has never been established. Yet there is scarcely a town or thriving village in which there is not found some sort of inconvenient and questionable social exchange of this nature. Sometimes it is a graveyard, sometimes a beach or wharf, sometimes a certain part of a certain street; sometimes interest in a literary or a charitable, a military, or even a mercantile enterprise, is the ostensible object which brings people together. But in its European signification the promenade exists only in the limited grounds attached to the capitol and to the "white house" at Washington, and in the yet half-made park of New York. It is a remarkable fact that in the second year after any portion of the roads of the latter are open, and while they are still incomplete and encumbered with the carts of the workmen, and there is but the faintest suggestion of park scenery, the promenade seems to have been fully established as an institution of the city. There are indeed few gayer or better attended promenades in Europe, it having been not at all unusual during the last year (1860) for 2,000 carriages and 10,000 persons on foot to enter the gates of a fine autumn afternoon, while, although 5 m. distant from the city hall, 100,000 have been drawn to it on special occasions. The central park of New York is being formed on two pieces of ground a little less than a mile apart, one of 331 acres, the other of 166, connected by two narrow strips containing together 187 acres, between which stand two great artificial reservoirs of water for the supply of the city, which occupy 142 acres. The park enclosure will therefore contain 776 acres, to which an addition of 68 is contemplated. The site of the central park, having been chosen on account of the impracticability of extending the ordinary street arrangements of the city over it, presents great obstacles to satisfactory park arrangements. In overcoming these, many peculiarities, by which it will be distinguished from all other parks, must result. The plan, which is still incomplete in details, contains about 9 miles of carriage road, 5 of bridle road, and nearly 20 of walks. A lake, which, with many deep bays, occupies 20 acres, is furnished with pleasure boats in summer; and in winter, its depth being reduced to 4 feet, at which elevation its banks are terraced, forms a skating field to which sometimes as many as 50,000 persons have resorted in a day, furnishing a scene of gayety and intricate motion almost without parallel. Fifty acres in different parts of the park are prepared especially for the recreation of ball playing. A district called the ramble, which can only be entered on foot, consists of a series of walks carried, in constantly changing grades and directions, through 30 acres of ground of very diversified character, the aspect of natural arrangement being everywhere maintained, while the richness of cultivation is added. The profusion of rocky surface, without the barrenness of vegetation which usually accompanies it, renders this very interesting and attractive; and, in the incomplete condition of the rest of the park, it is so often inconveniently crowded. At a point where the best interior view of the park is to be had, exterior scenes being obscured, and where the various communications are so arranged that visitors must pass near it, a series of terraces, staircases, and arcades, offer temptations and facilities for a large number of people to tarry, and so dispose of themselves while resting or lounging as not to be in each other's way. This is effected by a peculiar architectural arrangement, the details of which themselves invite observers to leisurely contemplation. Mr F. L. Olmsted and Mr. C. Vaux are the designers of the plan, which was obtained by a remarkable competition, the commissioners appointed to lay out the park having offered premiums, amounting to $4,000, for the best, which induced 85 studies to be presented to them, some coming from Europe. It is chiefly remarkable as an effort to reconcile the necessities of a park which is to be the centre of a crowded metropolis with scenery, the predominating quality of which shall be rural and in some parts even rudely picturesque. Its purely constructive features are for the purpose kept below the general plane of sight, and to some extent are completely subterranean. Its artistic intentions are described in a recent report of a legislative committee to be, "in the first place, to obtain large unbroken surfaces of smooth meadow-like ground wherever the natural obstacles to this mode of treatment are to be overcome, even by heavy expenditure. The immediate borders of these spaces are planted in a manner to hide or disguise any incongruous quality in the grounds beyond. The rocky and broken surface which originally characterized the whole site, however, admits of the application of this evident preference of the designers to but a small portion of the grounds thus far finished; and elsewhere its capabilities for picturesque effects have been revealed. The different classes of communications are so arranged that, by a peculiar system of arched passages, it never becomes necessary for a person on foot to cross the surface of the carriage roads, or the horseman's track, or the horseman to cross the carriage roads, though he may ride upon them if he prefer."—Philadelphia, Baltimore, Brooklyn, Hartford, and Detroit have each recently taken steps to obtain a park. In Philadelphia some fine old villa grounds, beautifully situated on the Schuylkill near the Fairmount water works, have been purchased. These contain 128 acres, upon which operations adapting them to public purposes have been commenced, and it is intended to add to them 80 acres on the opposite bank of the river, the two sections to be connected by bridges. The alterations to be made on designed and superintended by Messrs. Sidney and Adams. There are fine trees already on the grounds, and they possess many very valuable advantages in position, character of soil, and beauty of natural surface. At Hartford a competition of plans was held, but the committee having the matter in charge were dissatisfied with all that were offered, and undertook to form one for themselves which should avoid all the objections they found to each of them. The result was an ill-digested design, badly fitted to a rather difficult piece of ground. At Baltimore, Mr. Daniels, who had previously laid out a number of rural cemeteries, has been employed to adapt a very beautiful old private park to public purposes. The Brooklyn park commission is acting under the advice of Lieut. E. L. Viele, formerly of the U. S. army, but has not yet adopted a plan. Mr. Olmsted has been consulted with reference to the Detroit park, but nothing is yet determined in regard to it. Near St. Louis private munificence has formed and opened to the public a botanic garden. The common of Boston is a piece of undulating ground of 48 acres, in most of which trees have been planted without method, and a great many walks laid out with no other purpose than to offer short cuts through it from every entrance in all directions. It has a few fine trees, and the Beacon street mall, a broad avenue walk by the side of one of its boundaries, has a unique though perfectly simple character. The old public grounds of Cambridge, New Haven, and other towns often exhibit the beauty and value which trees acquire with age, when planted with ever so little art. These grounds are matters of town pride, and are assumed to have great value to the communities which possess them; but they are inconveniently arranged, badly kept, and bear a similar relation to a well designed and well kept park, that a wigwam does to a well appointed mansion. Savannah has a great number of small public squares, some few of them laid out and planted with taste, but most of them mere untidy spaces, too small for a walk or any purpose of recreation, except playing a game of marbles, and which apparently serve no purpose but to increase the distances between the houses of the town and enlarge its geographical size. At the Bonaventura cemetery, near Savannah, a natural assemblage of old live oaks, hung with moss, forms one of the finest scenes of druidic beauty in the world.—Landscape gardening in the United States has hitherto been chiefly directed to the improvement of naturally wooded scenery, and that on a small scale, yet in many instances, of which the best are on the banks of the Hudson, with admirable results. Publicly the art has been chiefly directed, also, to the improvement of naturally wooded, picturesque scenery in the formation of rural cemeteries. The motive of economizing space for graves, the association of funeral solemnity with shade, gloom, and seclusion, and the custom of yielding the planting of each allotment of ground for a family to the caprice or confined local purpose of its purchaser, have in these cases rendered the application of true art scarcely possible. Yet, though our rural cemeteries invariably contain much that is hideous, particularly in iron and marble, and are entirely without breadth or repose of scenery, many of them are very beautiful; and the older ones especially, although yet in their youth of the best tree life, exhibit the wealth of the country in elements for landscape art. The rural cemetery, which should, above all things, be a place of rest, silence, seclusion, and peace, is too often now made a place not only of the grossest ostentation of the living, but a constant resort of mere pleasure seekers, travellers, promenaders, and loungers; and this indicates, as much as any thing else, the need that exists in every town and village for a proper pleasure ground.—The most notable pleasure grounds of remote antiquity of which we have any clear account, were those formed by Nebuchadnezzar, at Babylon, to satisfy the longing for picturesque scenery of his home-sick Median bride. If we credit the accounts of Diodorus and Strabo, nothing has been attempted in modern times to compare in magnificence with what was there achieved. The ancient Persian gardens seem to have been designed with the same motives which rule in those of modern Turkey. The intention in these is to secure a luxurious repose, which is to be accomplished by establishing a sense of security and privacy; hence "the wall about" is an important feature, and is not hidden from view. Trees are planted in rows, in order that the wind may draw in currents between them. Small fountains of water or streams of running water, to increase the sensation and association of coolness, are required. Flowers are cultivated for perfume and beauty. Inducements to exercise are not desired. Distant views, which would be calculated to distract the mind from the present enjoyments, are not sought for. The proprietor commonly proceeds on entering his garden immediately to a seat near its centre, where he remains until he is ready to leave. Enclosures were sometimes made by the Persians for keeping wild beasts, and aviaries were common. Terebinthinate evergreens were esteemed a luxury.—The Greeks derived their ideal of gardens from the Persians, and seldom attempted any essential improvements upon it; which leads Lord Bacon to remark that "men came to build stately sooner than garden finely, as if gardening were the greater perfection." Athens had its public park, however, called *Academia*, which in the height of its civilization seems to have wanted nothing that we should deem essential for the purpose, considering the climate and the different customs of the people. Originally a rugged piece of ground, it was laid out by Cimon, who formed pleasant walks, introduced a stream of water, and planted groves. Facilities were designedly offered for robust exercises as well as for contemplative recreation. At the entrance the first altar, dedicated to Love, was placed. Scattered through the grounds were statues and monuments to the most worthy citizens. The best evidences of Athenian civilization are connected with this park.—When Rome was in her glory, her citizens were proud of their country houses and pleasure grounds. The sites for these were chosen with the greatest care, and shaped elaborately in stately terraces about the mansion. The grounds were profusely furnished. Pliny's Tusculan villa was provided with a court for chariot exercise, and another for horseback riding; with terrace walks suitable for the general assemblage of his guests, and retired paths for those disposed for solitude. In the grounds were an enclosure for wild animals, an apiary, a snailery, and a dormice house. There was also a flower garden, with fountains flowing from marble vases. Adjoining the house proper, the park was strictly formal and symmetrical with the architecture; the walks were lined with box and plane trees sheared to the shape of walls, and in some parts trained in fantastic figures. These have been generally considered as mere puerile conceits, but no one who has thoroughly felt the peculiar charm of Italian landscapes, can fail to comprehend how they may have been used to add to the enchantment of the view of which they furnished the foreground; and it is to be remarked that Pliny describes at length how his seats and windows, even his bath and place of rest, were arranged with express reference to the best distant views over the Campagna. It is then probable that the shearing of his trees was intended to make them subordinate to the highest beauty of the natural scenery beyond his own possessions. This must be assumed, or we are left to suppose that a style of landscape improvement which was the foundation of all essays in rural art in Europe till the earlier part of the last century, and which had its origin in the golden age of Roman architecture and in the closest connection with it, was itself without any basis of art. We have no need to trace its lapses and revivals, its advances and degradations. As practised in England, at least, it had long lost the slightest element of the artistic feeling, which still in Italy it cannot be denied to possess. This is shown in the opinion of Sir William Temple that the best example of gardening at home or abroad was that at Moor Park, a garden which, according to Walpole, would have lost none of its beauty if designed by one "who had never stirred out of Holborn"—in other words, if utterly dissevered from all sentiment of nature. The real artistic qualities of the ancient style were thus entirely overlooked, and its mere excrescences and frivolities had come to be considdered its essential features. In Addison's ridicule of these ("Spectator," No. 414), and in his praise of a shrubbery which Bridgman, the court gardener, had formed out of some old gravel pits in the palace grounds at Kensington, the first evidence of the practical revival of art in gardening is found. It is supposed that the earliest innovations upon the fashionable style were suggested by travellers' descriptions of the somewhat grotesque imitations of nature which for centuries had been the delight of the Chinese in their gardens. They were made very cautiously, usually as a mere incident of nature within a formal garden. Years after Addison's paper in the "Spectator" appeared, it was considered a bold eccentricity which carried the Serpentine through a corner of Kensington gardens with shores aligning with nothing in their vicinity. The first garden in which formality was attempted to be laid aside, and the intricacy of nature aimed at is believed to have been that of Pope at Twickenham. Addison's garden, laid out also in defiance of the fashion by himself, and still existing near Rugby, is informal without being picturesque. The first man to attempt to form really a landscape in England was Kent, who had been a student of art in Italy, and who on his return was recommended by Lord Burlington to paint the ceilings at Stowe, and afterward as an architect, in which capacity he first gave his attention, as all architects should, to the connection of his buildings with the landscape of their vicinity. Naturally enough, seizing in his design upon that which was most important, he swept away the rubbish which now represented the ancient style, and undertook the creation of scenery upon the ground at his command on the same principles that he would select a subject in nature for his canvas. The new style soon became the fashion, but like all fashions it was too generally adopted with little appreciation of the real basis it had in art. To avoid "three trees in a line," to form meaningless slopes, tame rivers, and monotonous groves, was not a difficult task even to the old gardeners, whose box Venuses and [illegible] hedgehogs had become dead stock. A host of servile followers after Kent supplied the demand for change which rapidly extended to almost every country seat of importance in the kingdom; and, in their haste to demonstrate the landscape capabilities of the ground which they were called to improve, too often the destruction of noble avenues and terraces was involved, the value of which when rightly placed had probably been disregarded by Kent merely out of disgust with their general misplacement. In the latter part of the 18th century landscape gardening, in the hands of most of its professors, had thus well nigh again become a mechanical business, instead of the liberal art which Kent had made it. The ground was made to suit a plan the features of which were constantly repeated, instead of a plan being made to meet the suggestions of the ground. "Most of our large gardens," says a writer of the day, "are laid out by some general undertaker [contractor], who introduces the same objects at the same distances in all." Thus, except where proprietors became artists themselves, talent was not demanded nor sustained, and the monotonous repetitions, the dulness, and the common marks of the respectability of fashion characterized nearly all the gardening of the time, until poetic and artistic genius again combined to criticize and create, as in the time of Pope, Addison, and Kent. In the various "Picturesque Tours" of Gilpin, and the voluminous "Essays on the Picturesque" by Sir Uvedale Price, the true principles of art applicable to the creation of scenery were laboriously studied and carefully defined. Shenstone, Mason, and Knight, by their poems, materially aided the revivification of the art. In more recent times the good service of Repton, Loudon, Paxton, Kemp, our own Downing, and other artists and writers on the subject during the present century, merits warm acknowledgment. Downing's works especially should be in every village school library.—The natural style had soon after its adoption in England become fashionable on the continent, and writers there treating of it had even exercised some influence on the improvement of taste in England. An artistic sense is more generally perceptible in the detail of grounds on the continent than in those of England itself. In all close scenery, as well as in vistas, peeps, and what a landscape painter would consider "good bits" for sketches, the continental gardeners are often faultless; but the formation of entirely artificial complete landscapes, or the improvement of broad scenes throughout their whole scope and to remote distances, all in imitation of nature, is to this day the peculiar art of England.

PARK, Edwards A., D.D., an American clergyman, born in Providence, R. I., Dec. 29, 1808. He was graduated at Brown university in 1826, and at Andover theological seminary in 1831, when he was ordained pastor of the Congregational church in Braintree, Mass. In May, 1835, he became professor of moral and intellectual philosophy in Amherst college; in Sept. 1836, Bartlett professor of sacred rhetoric in Andover theological seminary; and since 1847 he has been the Abbot professor of Christian theology in the latter institution. He has contributed extensively to periodical literature, and has been one of the editors of the "Bibliotheca Sacra" from the beginning. He translated with Prof. B. B. Edwards a volume of "German Selections" (1839); and has edited the "Writings of Rev. William Bradford Homer," with a memoir (1842); a volume on homiletics called "The Preacher and Pastor," with an introductory essay (1845); the "Writings of Prof. B. B. Edwards," with a memoir (2 vols., 1853); and with Drs. Phelps and Lowell Mason the "Sabbath Hymn Book" (1858). In 1859 he assisted in editing a volume of "Discourses and Treatises on the Atonement," for which he wrote an introductory treatise on "The Rise of the Edwardean Theory of the Atonement." In 1861, with Dr. Phelps and the Rev. D. L. Furber, he published a critical volume on hymnology, entitled "Hymns and Choirs." He has also published memoirs of Dr. Samuel Hopkins (1852), and Dr. Nathaniel Emmons (1861), prefixed to editions of their works; and various discourses, among which are a funeral sermon on Prof. Moses Stuart; a convention sermon on "The Theology of the Intellect and the Feelings," which was the theme of a prolonged controversy between him and the Rev. Dr. Hodge of Princeton; and a sermon at the dedication of the Broadway tabernacle in New York. He is generally acknowledged to be one of the foremost preachers of New England, and ablest living representatives of what is commonly called "the New England theology."

PARK, Mungo, a Scottish traveller, born at Fowlshills, near Selkirk, Sept. 10, 1771, killed in Africa in 1806. He was one of 13 children of a Scottish farmer, but received a fair education, and at the age of 15 was bound apprentice to a surgeon in Selkirk. He afterward studied his profession at the university of Edinburgh, and soon after receiving his degree was appointed assistant surgeon to an East Indiaman, in which he made a voyage to Sumatra. On his return, learning that the African association were anxious to send an explorer to the river Niger, he offered his services, sailed from Portsmouth May 22, 1795, and in one month anchored at Jillifrey on the Gambia, whence he proceeded to the British factory of Pisania in the kingdom of Yani. During an illness of 5 months he acquired the Mandingo language, and on Dec. 2, accompanied by 6 negroes, set out on horseback toward the east. On reaching the border between Bondoo and Kajaaga, he found it necessary for his safety to travel by night; nevertheless at Joag in the latter kingdom he was robbed of half his goods. Unable on account of wars to traverse the country of Bambarra to Timbuctoo as he had intended, he resolved to make a detour toward the N. in hopes of reaching the same destination through the Moorish kingdom of Ludamar. It was here that Major Houghton had lost his life, and the inhabitants bore an exceedingly bad character for inhospitality and fanaticism. At Benowm, the capital, a wild boar was let loose upon him, but, vastly to the surprise of the natives, it attacked the Moslems and let alone the Christian. He was then placed in a hut, in a corner of which the boar was tied, and it was debated between the king and his advisers whether he should lose his right hand, his eyes, or his life. At length, after more than a month's captivity and torture, he made his escape alone, and reached Bambarra, where he met with better treatment. On July 21, 1796, he struck the Joliba or Niger at Sego, a city of 4 distinct quarters, 2 on each side of the river. Communication was kept up by large canoes, which were constantly crossing and recrossing; and so great was the crowd of passengers that Park had to wait 2 hours before there was room for him in the boat. Then, however, there came an order from the king forbidding him to cross, and he was indebted for relief to a woman who took him into her hut, gave him supper and a bed, and with the female part of her family sang a song about the "poor white man" which the traveller has preserved in his journal. "In the morning," he writes, "I presented my compassionate landlady with two of the four brass buttons which remained on my waistcoat, the only recompense I could make her." The king soon sent him a guide and a present of 5,000 cowries, with which he pursued his journey down the left bank of the river to Kea, where he dismissed the guide and went by water to Silla on the opposite bank. Here he was again attacked by sickness, and, worn down by disease, hunger, and fatigue, half naked, and destitute, he despaired of advancing further into a country where the fanatical Mohammedans were paramount, and at a season of the year when the tropical rains rendered travel impossible except by water. After collecting what information he could respecting the Niger and the adjacent country, he accordingly set out on his return, July 30, and after a long series of sufferings and robberies arrived at Pisania, June 10, 1797. An American vessel carried him to Antigua, whence he took ship for England, and on Dec. 22 landed at Falmouth. His unexpected return, after he had long been given up for dead, created an extraordinary enthusiasm. An outline of his adventures was drawn up by Mr. Bryan Edwards, accompanied with geographical illustrations by Major Rennel, and the whole narrative appeared in 1799. It was written in a pleasing style and became exceedingly popular, though it threw little light upon the problem of the direction of the Niger, which had been the chief object of his search. Park now returned to his father's farm in Scotland, married, and commenced the practice of medicine at Peebles. In 1805 he was requested by the African association to undertake a second journey to the Niger under the auspices of the British government. Being well supplied with money, he resolved to travel with an armed force to Sego, and there to build two boats and sail down the river. The king gave him the brevet rank of captain, and his companion and brother-in-law Mr. Anderson that of lieutenant. The other members of the expedition were Mr. Scott, draughtsman, an officer and 34 soldiers of the garrison of Goree, 2 sailors, and 4 artificers. They reached Pisania April 28, and, without waiting for the rainy season to be over, at once pushed into the interior, keeping considerably to the S. of Park's former route, and winding among the head streams of the Senegal and Gambia. They were not much molested by the negroes, but the climate proved a more deadly enemy, and when they came in sight of the Niger near Bammakoo 28 of the soldiers and 3 carpenters had died. With the remnant of his force Park floated down to Sansanding in canoes, and there replenished his funds by the sale of some of his goods. There too he had the misfortune to lose Mr. Anderson; Scott had also died, and when a boat was prepared for resuming the voyage, Park's only companions were Lieut. Martyn and 3 soldiers, one of whom was deranged. About the middle of November they set out, having first sent back their guide Isaaco with a journal of their discoveries. In the following year rumors reached the British settlements of Mungo Park's death, but nothing was known of his fate until the governor of Senegal in 1810 despatched Isaaco into the interior to ascertain what had become of him. From a man at Sansanding who had accompanied the party from that place to Yaoori, Isaaco received a later journal, and learned that after passing Jennee, Timbuctoo, and Yaoori, and repelling several attacks of the natives, they reached at Boussa a narrow pass where the river flows between precipitous rocks. Here they were set upon by the soldiers of the king of Yaoori, with lances, arrows, and stones. Two negro slaves were killed in the canoe, and the white men jumping into the water were drowned in attempting to escape. At first this story was not generally believed in England; but Clapperton found full confirmation of it, and learned that Park's manuscripts were still in the king's possession, but he was unable to obtain them.

PARKE, a W. co. of Ind., bordered W. by the Wabash river, and drained by Sugar and Racooon creeks; area, 440 sq. m.; pop. in 1860, 15,448. It has an undulating surface and a very fertile soil, with extensive beds of coal. The productions in 1850 were 1,195,654 bushels of Indian corn, 101,720 of wheat, 80,165 of oats, 60,743 lbs. of wool, and 5,548 tons of hay. There were 17 saw mills, 18 tanneries, 1 newspaper office, 14 churches, and 1,650 pupils attending public schools. Capital, Rockville.

PARKER, Isaac, an American jurist, born in Boston, June 17, 1768, died there, May 26, 1830. He was graduated at Harvard college in 1786, and removing to Maine, commenced the practice of the law in Castine. In 1796 he was elected by the federal party a member of congress, and upon retiring from office in 1799 he received from President Adams the appointment of marshal for the district of Maine, which he held until the accession of President Jefferson. He subsequently established himself in Portland, and in 1806 was appointed a judge of the supreme court of Massachusetts. In 1814 he succeeded Chief Justice Sewall as the presiding justice of the court, the duties of which office he discharged until the close of his life. He was also Royall professor of law in the law school of Harvard university. In 1820 he presided over the Massachusetts convention for the revision of the constitution.

PARKER, Matthew, second Protestant archbishop of Canterbury, born in Norwich, Aug. 6, 1504, died May 17, 1575. He entered Corpus Christi college, Cambridge, in 1520, and by 1527 had become so renowned for his attainments in theological learning, that Cardinal Wolsey offered him a professorship in his newly founded college at Oxford, which he refused. In 1533 he received a license to preach, and became chaplain to Anne Boleyn in 1534, dean of the college of Stoke Clare in 1535, chaplain to King Henry VIII. in 1537, master of Corpus Christi college in 1544, vice-chancellor of Cambridge university in 1545, and dean of Lincoln in 1552. Having married in 1547, he was deprived upon the accession of Queen Mary of his offices, as like many of the clergy he refused to part with his wife. During the reign of Mary, according to a MS. in Corpus Christi college: "He lurked secretly in those years within the house of one of his friends, leading a poor life, without any men's aid or succor; and yet so well contented with his lot, that in that pleasant rest and leisure for his studies, he would never, in respect of himself, have desired any other kind of life, the extreme fear of danger only excepted. And therein he lived as all good men then did. His wife he would not be divorced from, or put her away all this evil time (as he might, if he would, in those days, which so rigorously required it), being a woman very chaste and of a very virtuous behavior, behaving herself with all due reverence toward her husband." Part of this time he spent in translating the Psalms into English verse, and writing a treatise entitled "A Defence of Priests' Marriages." Upon the accession of Queen Elizabeth he was chosen archbishop of Canterbury, and on Dec. 17, 1559, consecrated in Lambeth chapel. He was now at the head of the Protestant interest, charged with the duty of completing the work of the reformation. He successfully combated a lingering affection in the mind of the queen for the use of images, filled all the vacant sees with men of decided Protestant opinions, and strove to render the rites and ceremonies of the church as uniform as possible. He was a munificent patron of learning, having founded several schools, and made many valuable presents to the colleges at Cambridge, beside establishing scholarships and fellowships. He was one of the first chosen to review the "Book of Common Prayer," and a revision of the "Bishops' Bible" was made in great part under his inspection. He published a Saxon homily on the sacraments, and caused to be printed the chronicles of Matthew of Westminster, Matthew Paris, and Thomas Walsingham, and Asser's "Life of King Alfred."

PARKER, Nathan, an American clergyman, born in Reading, Mass., June 5, 1782, died in Portsmouth, N. H., Nov. 8, 1833. He was graduated at Harvard college in 1803, and studied theology under the direction of the Rev. Dr. Bancroft of Worcester. In 1805 he was appointed tutor in Bowdoin college, and was ordained pastor of the South church in Portsmouth on Sept. 14, 1808, which office he retained through life. In 1825 he received the degree of D.D. from Bowdoin college. When the division of the Congregational body in New England into two parties was recognized, he took part as a professed Unitarian. During his life he published nothing except two or three occasional sermons. After his death a volume of his sermons was published, with a memoir by the Rev. Henry Ware, jr.

PARKER, Theodore, an American clergyman and scholar, born in Lexington, Mass., Aug. 24, 1810, died in Florence, May 10, 1860. His ancestors were all farmers or mechanics, men of plain sense, and a practical turn, with a love for military affairs. John Parker, his grandfather, was a captain of militia just before the revolution, and commanded his company on Lexington green, on the morning of April 19, 1775. The "queens-arm" which he took from a British straggler, after the main body of the troops had pushed on to Concord, was preserved by his grandson, and left by will to the state of Massachusetts. Theodore learned to work on the farm which had been in his family for 150 years, and in the tool shop; for his father not only tilled the soil, but bored pumps, made and repaired wheels and carts, and could turn his hand to almost any job of carpentry. In the winter the son went to the district school. At the age of 17 he began to teach school in the winter months, and part of the money thus gained he laid out for the books requisite to prepare for an advanced class in Harvard college. He surprised his father one night (Aug. 23, 1830) with the announcement that he had been down to Cambridge and had entered the freshman class. But he remained at home, working on the farm, and studying far beyond the requirements of the college programme, compressing three years into one, and going down to Cambridge to submit to the regular examinations. In 1831 he was teaching a private class in Boston. Latin, Greek, Hebrew, German, French, Spanish, and metaphysics filled his leisure. In 1832 he took an empty carriage house at Watertown, assisted in flooring it and fitting it up with desks, and opened a private school with two scholars, one of whom was on charity; he soon had over 50, however. For their benefit, and for his class in the Sunday school, he wrote a history of the Jews, which still lies in manuscript. Here he remained two years, pursuing the study of languages and theology, in order to enter the middle class at the divinity school in Cambridge in 1834. Syriac, Arabic, Danish, and Swedish were here added to his list of languages; and Anglo-Saxon and modern Greek were commenced. He was one of the editors of the "Scriptural Interpreter," a magazine conducted by members of the school. During the autumn and winter of 1836 he preached in various pulpits of Massachusetts, and was settled at West Roxbury in June, 1837. Here he slowly formed views upon the authority and inspiration of the Bible which were not in harmony with the teachings of any New England pulpit; and he was already the subject of criticism among his Unitarian brethren. But the difference did not become well defined and public till the ordination of Mr. Shackford at South Boston, May 19, 1841; on which occasion Mr. Parker preached a discourse on "The Transient and Permanent in Christianity," which set forth the distinction between the theological forms and the essential spirit of religion. The objectionable feature was the assumption of the humanity and natural inspiration of Christ; this was the commencement of a controversy, during which Mr. Parker developed his anti-supernaturalism in various writings and sermons. In the autumn of 1841 he delivered in Boston 5 lectures, which formed a volume entitled "A Discourse of Matters pertaining to Religion," published in the spring of 1842. He delivered 6 "Sermons for the Times" in Boston and elsewhere during the autumn and winter of 1842. Somewhat overworked and harassed by the position of antagonism in which his views had placed him, he went to Europe in Sept. 1843, and travelled in England, France, Italy, and Germany, till his return in the summer of 1844. The controversy was renewed on occasion of his exchanging pulpits with some of the more liberal Unitarian preachers; and to satisfy the interest of numerous friends in Boston, he began to preach at the Melodeon, Feb. 16, 1845, and was installed there over a newly organized parish, styled the twenty-eighth Congregational society, in the spring of 1846. Up to this time, beside the writings above mentioned, his more notable productions were articles in the "Dial" upon German literature, St. Bernard, Pharisaism, Strauss, review of the Hollis street council, and an article in the "Boston Quarterly Review" upon Palfrey's "Academical Lectures." He had also written articles for the "Christian Register" and the "Christian Examiner," and "Inquiries into the Origin of Writing," which is still unprinted. His translation of De Wette's "Introduction to the Old Testament," upon which he had been laboring for some time previous to 1837, and to which he added original matter of his own, appeared in 1843, before his departure for Europe. Other translations, from Ammon, Eichhorn, and Gesenius, seem to have been preparatory to that important work. In Dec. 1847, appeared the first number of the "Massachusetts Quarterly," mainly under his editorial care, a review in politics and theology. He conducted this during its life of 3 years, contributing many articles, the principal of which are: "R.W. Emerson," "Dr. William E. Channing," "Mr. Prescott as a Historian," and "The Political Destination of America." Though his labors as a preacher were very great, he engaged actively in lecturing, and travelled east and west, never without a carpet bag full of books, which he studied in the railroad cars. The invitations to lecture in every part of the North became at length so numerous that to save trouble he used printed circulars of refusal. He vigorously opposed the Mexican war, and was one of the earliest advocates of temperance and anti-slavery, writing and speaking much for the latter cause especially. After the passage of the fugitive slave law in 1850, he became widely known, by speech and act, as its uncompromising opponent. Every case of attempted rendition in Boston enlisted his personal activity; and his sympathy was so prominent at the time of the rendition of Anthony Burns (May 24 to June 8, 1854), as to procure his indictment in the U. S. circuit court for resisting an officer of the United States in his attempt to execute process. This was based upon a speech which he delivered at Faneuil hall before an anti-rendition meeting, in which he was misunderstood to advocate a forcible rescue of Anthony Burns. The indictment was quashed by a decision based upon a technicality; but Mr. Parker had prepared an elaborate defence, which he printed. In Nov. 1852, his congregation occupied for the first time the great music hall in Boston, which was crowded every Sunday, the large congregation being reënforced by strangers from every part of the country, attracted by his fame. He was now often ill, and compelled for a while to cease preaching and writing; but his persistent will carried him through till Jan. 1859, when an attack of bleeding at the lungs brought to a close his public services at the music hall. On Feb. 3 he sailed for Santa Cruz, whence in May he sent a letter to his parish entitled "Theodore Parker's Experience as a Minister." From that island he sailed to Europe, spent some time in Switzerland, and went to Rome, where he passed the winter of 1859. Setting out thence in April, 1860, very much enfeebled, he reached Florence with difficulty, where he died. He was buried in the cemetery outside the walls; a stone, bearing simply the dates of his birth and decease, marks the spot.—A statement or scheme of his theology may be drawn up as follows. God is infinitely wise and good, impersonal because not comprehensible in any human conception, but personal because containing all his attributes in a unity of will and essence. He is immortal in nature and man through premeditated laws natural and spiritual, working in love and never in wrath, comprising all evil in the good of his ulterior designs, yet inspiring man with a moral sense and urging him to embrace goodness. The sentiment of religion belongs by creation to every human soul, who is receptive of religious and moral truth by direct nourishment from God according to the quantity of being and the quantity of obedience. Every kind of truth, all art and science, are necessarily nourished by an immanent God, and an intuitive ability everywhere holds the developing finite to the perfect and unchangeable infinite. The Bible contains various phases of the moral and religious growth of the human race, colored like other histories with the misconceptions of half educated people, and with their love for the marvellous, and to be read and criticized on the natural ground of other histories. The absolute religion of which the human soul is made capable was perfectly set forth in Jesus, but mixed with local elements of time and race. The absolutely intuitive in man can recognize the absolute truths of the intuitions of Jesus, who was like all men directly inspired by the Father, and can separate them from the mistakes of the time and the traditions which gradually clothed them in a supernatural dress. A miracle is not an *a priori* impossibility, because God has infinite power; but the account of one is a subject for criticism, and depends upon evidence. The evidence for the miracles of the Old and New Testaments, for other miracles in ancient and mediæval history, and for those of modern spiritualism, is very defective; and if they could all be substantiated, no vital connection could be detected between them and spiritual truths, which come by intuition and appeal directly to the same. The truths of religion, in coming through this intuitive ability, are compelled to take the investiture which the mind can furnish. Ignorance smothers and dislocates the ray. Different races give the truth different expressions. Knowledge and culture simplify the theological statements of spiritual things, and man tends to put the transitory aside for the sake of the eternal, to reject doctrines concerning God and human nature which reflect his own passions and cramp his own spiritual liberty. He then sees that the truth of which he is capable would become superior to moral infirmity as well as to defective mental expression, and would enlist his will to uphold the absolute simplicity of the moral law, to make him love purity, peace, and charity, to abhor slavery, and to take pity upon all the unfortunate. The true church is a paternal coöperation of all believers in man's capacity for holiness and his equality of rights, to do the will of God on earth, and to organize in practical effect the great principle of love to God and to man.—Mr. Parker's printed works are: "Miscellaneous Writings" (12mo., Boston, 1843); "A Discourse of Matters pertaining to Religion" (1849); "Occasional Sermons and Speeches" (2 vols. 12mo., 1852); "Ten Sermons on Religion" (1853); "Sermons on Theism, Atheism, and the Popular Theology" (1858); "Additional Speeches, Addresses," &c. (2 vols. 12mo., 1855); "Trial of Theodore Parker, for the 'Misdemeanor of a Speech in Faneuil Hall against Kidnapping'" (1855); "Two Christmas Celebrations;" and "Experience as a Minister" (1859). In addition to these, the work to which he devoted all the time he could procure, and which was intended to be an account of the development of religion through all nations, lies in a fragmentary condition. His library of more than 13,000 volumes he bequeathed to the free library of Boston.

PARKMAN, Francis, an American author, born in Boston, Sept. 16, 1823. He was graduated at Harvard college in 1844, visited Europe, and in 1846 made a journey across the prairies and explored the Rocky mountains. An account of this expedition was given in a series of articles in the "Knickerbocker Magazine," which were collected and published under the title of "The California and Oregon Trail" (New York, 1849). His next production was a "History of the Conspiracy of Pontiac, and the War of the North American Tribes against the English Colonies after the Conquest of Canada" (Boston, 1851). Mr. Parkman has been for several years engaged in writing a history of the French power in America, and has pursued his labors under the disadvantage of an affection of the eyes which renders him often wholly unable to read or write, and of a very painful disorder of the brain.

PARLATORE, Filippo, an Italian botanist, born in Palermo, Aug. 8, 1816. He received a medical education at the university of Palermo, was admitted to practice in 1834, and in 1837 published a treatise on the cholera. Leaving Sicily in 1840, he made an extensive tour of Italy and Switzerland, and published in Paris several botanical works, including his *Plantæ Novæ* and "Observations on some new Plants of Italy." In 1841 he read important memoirs on organography, vegetable morphology, and other botanical subjects previously neglected by Italian naturalists, before a scientific congress at Florence, and by his efforts succeeded in procuring the establishment in that city of a herbarium of all known plants, of which, at the recommendation of Humboldt, he was appointed the curator. At the same time a professorship of botany which had been for many years unfilled was revived for his benefit. In 1843 he published at Florence his "Comparative Botany," and soon after "Researches on the Structure of Aquatic Plants." Subsequently he undertook a scientific tour in northern Europe, penetrating as far as Lapland, where he made careful observations of the limits of vegetation, as he had previously done on the mountain ranges of central and southern Europe. His "Journey to the Great Saint Bernard" (Florence, 1849), and "Journey to the North of Europe" (1854), giving the results of these explorations, are preliminary to a comprehensive work on the botanical geography of the globe, on which he has for years been engaged.

PARLIAMENT (low Lat. *parlamentum;* Fr. *parlement*, from *parler*, "to speak"), originally a meeting or assembly for conference or deliberation; afterward applied in France to the principal judicial courts, and in England to the legislature of the kingdom. The word, or one very like it, was long in use in France, and was first applied there to general assemblies in the time of Louis VII., about the middle of the 12th century. The earliest mention of the word in the statutes of England occurs in the preamble to the statute of Westminster, 1272. Many writers have asserted the identity of the modern parliament with the general councils of the Saxons, with their *michel-gemote* or great meeting, or their *witena-gemote* or meeting of the wise men; and also with the *commune concilium* and *magnum concilium* of later times. It is indeed indisputable, as Blackstone says, that general councils are coeval with the kingdom itself; but that those of early times bore any essential resemblance to the present parliament is far from certain. Particularly, it has been observed by intelligent authority, has antiquarian research failed to find in the general assemblies of elder times the royal summoning, the hereditary principle of the upper house, and the representative principle of the lower, which are the characteristic features of the British parliament as it now exists. But we may probably with safety assume that the present constitution of parliament existed early in the 14th century. In Magna Charta, King John promises to summon all archbishops, bishops, abbots, earls, and greater barons personally, and all other tenants in chief under the crown by the sheriffs and bailiffs; and there are still extant writs of the date of 1266, summoning "knights, citizens, and burgesses" to parliament. A statute passed in the reign of Edward II. (1322) declares that certain matters shall be established in parliament "by the king and by the assent of the prelates, earls, barons, and the commonalty of the realm, as has before been accustomed;" and it is of this statute that Mr. Hallam remarks, that it not only establishes the present structure of parliament, but recognizes it as already standing upon a custom of some length of time.—The imperial parliament of the United Kingdom of Great Britain and Ireland is composed of the crown and the three estates of the realm, the lords spiritual, the lords temporal, and the commons. It is the prerogative of the crown to convoke, continue, or dissolve it. Formerly it was the theory of the English constitutional law, that the power of the crown in these respects was measured only by its pleasure; that the sovereign might omit during his whole reign to call a parliament; or if he called one, might keep it undissolved for the same period. But now, on the authority of statute and otherwise, it is established that no parliament can last longer than 7 years; and that writs for summoning a new parliament shall issue within 3 years from the dissolution of the last one. In practice, parliaments assemble annually, and must continue to do so, while the legislation for the army, the judiciary, and the whole service of the kingdom has validity and makes appropriations for only a twelvemonth. Among the other constitutional prerogatives of the crown, as a branch of parliament, are its negative upon the choice of a speaker by the commons, and upon bills passed by both houses. But neither of these prerogatives could now with safety be arbitrarily asserted by the sovereign.—The house of lords possesses peculiar and exclusive judicial authority, both in law and in equity, as the final court of appeals and errors, upon writs from all the higher courts of record in the country. (See LORDS, HOUSE OF.) The lowest branch of parliament, the third estate in dignity, but in fact the foremost in substantial power, is the commons; or, to use the title which suggests the composition of this house, the knights, citizens, and burgesses. The rise and increase of the power of the commons offers a subject of most interesting study. Into historical details, however, we can enter here no further than to note those epochs which more immediately explain the constitution of this branch. We have seen that the first clear intimation of two branches of parliament (not then necessarily sitting separate, however) is afforded by Magna Charta. The great charter provides a mode of summons according to rank. The greater barons were to be individually cited by special writs, while the other tenants in capite were to be called by general summons. That is to say, with regard to the former of these classes an individual and absolute right seems to be conceded; while with regard to the latter, those were considered to be entitled and summoned whom the general body should select as their representatives. Thus these inferior landed proprietors, or lesser barons as they have been called, ceasing gradually to be regarded as peers, were allowed and sometimes directed to be summoned as knights of shires. Gradually, too, their privilege diminished, till they lost altogether the right of sitting with their superiors; and, merging in the commonalty, they came in time to form with the representatives of cities and boroughs the lower house. The union of these three classes in one assembly is probably rightly fixed at the close of the 13th century. During the reigns of the first three Edwards, the power of the commons was materially enlarged, and firmly established; and to the time of Edward IV. Mr. Hallam refers the foundation of the principle, that the assent of the two houses is necessary to every legislative act. But owing to the jealousy of the upper house, and to its opportunities for defeating the rights of the commons, the principle was for a long time not carried out. In the reign of Henry VI. it first became true in fact, as it had long been in the theory of the government, that "the law of the land is made in parliament by the king and the lords spiritual and temporal and all the commonalty of the realm."—It is the exclusive right of the commons to originate all bills which either directly or by construction impose any burden or charge on the people; and these bills include not only those which provide supplies for the general administration of the government, but also all those which contemplate a tax upon the public for any purpose or in any mode. Hence, all bills for making roads and canals or building bridges, paving and building acts, and any others which propose the collection of tolls or the imposition of rates or duties upon the subject, must originate in the commons. All other bills of whatever nature may originate in either house indifferently. In practice, each house appropriates to itself peculiar cognizance of those matters of which, from its experience and constitution, it is the most competent judge. Bills, for example, which concern the settlement of peerages begin naturally with the lords; while bills for regulating elections originate as naturally with the commons. The commons have not final appellate jurisdiction like the lords; yet in certain cases they exercise judicial functions, and when proceeding in such cases they are a court of record, and their journals bear the credit of public records. Examples of these functions are the consideration of cases of contested elections and returns, and the hearing and punishing of contempts. Acting in concurrence with the lords, they exercise higher powers of judicature, as in matters of attainder and pardon, and until lately of divorce. The house of commons consists at present of 654 members. Of these England and Wales send from counties 159, from the universities 4, and from the towns 338. Of the Scottish members, 30 come from counties and 23 from towns. Ireland returns 64 members for counties, 39 for towns, and 2 for the university of Dublin. The religious disqualifications which formerly excluded some persons from parliament were removed, partly by the repeal of the test act in 1828, and partly by the Catholic emancipation act of 1829. Until 1858 Jews were shut out from both houses of parliament by that clause, to which they could not conform, which required the oaths to be taken "on the true faith of a Christian." This disabling clause has not been stricken from the formulas of the oaths, but in the year just named a statute was passed which permits either house to dispense with it at its pleasure, in the administration of them. No peer of parliament is eligible to the commons; yet any Irish peer, not of the number of the 28 representatives, may sit in the lower house. This rule is however not true of the same class of Scottish peers. No person officially employed about duties or taxes created since 1692 (except commissioners of the treasury), no officer of excise, customs, stamps, &c., no pensioner of the crown, no contractor with government, no judge of the king's bench, common pleas, or exchequer, no chancellor or vice-chancellor (it is otherwise with the master of the rolls), and no police justice of London is eligible; and by statute 6 Anne, c. 27, it is provided that no person holding any new office under the crown created since 1705 is eligible. But if any member of the house of commons accept any office of profit under the crown while he is a member, his seat becomes vacant, but he may be again elected. The house of commons has given various constructions of this statute, and expressly excepted from it a large number of offices. The clergy of the church of England and Ireland are ineligible. Sheriffs of counties, mayors, and bailiffs of boroughs, as returning officers, are also incapacitated. Ministers of the crown, however, are required to hold seats in one house or the other; and members of the lower house, on receiving a cabinet appointment, resign their seats and appeal to their constituents for re-election, as an indication of confidence in the ministry.—Until it was remodelled 30 years ago by the reform act, the parliamentary franchise remained as it had been fixed by statutes of the time of Henry VI. It had been narrowly restricted by these statutes, both in the counties and in the boroughs, and the necessity of a thorough change had long been insisted on. The tory ministry of the duke of Wellington in 1830 was brought to an end by the determined opposition of the premier to any change in the representation and suffrage, and was succeeded by a ministry headed by Earl Grey, who had been the steady advocate of parliamentary reform for 40 years, and who then stood at the head of the whig aristocracy. The first reform bill was introduced into the house of commons, March 1, 1831, by Lord John Russell, and was carried on the 2d reading after great debates, by a vote of 302 to 301. Subsequently ministers were defeated on several questions, and parliament was dissolved, April 22. The new house of commons was chosen under great popular excitement, and in a full house the ministerial majority was about 130. Another reform bill was brought forward, and after a discussion of many weeks was passed, 345 to 236. The house of lords threw out the bill by 41 majority. This caused great indignation. Immense popular meetings were held, and there were riots at Derby, Nottingham, and Bristol, that at Bristol being of an alarming character. On Dec. 12 a 3d reform bill was brought forward, which passed to a 2d reading by 162 majority. The lords passed it to a 2d reading by 9 majority, April 14, 1832; but on May 7, in committee, they defeated the ministry by a majority of 35. The court, from the queen downward, was almost entirely opposed to reform, and the king's mind had been acted on by most persons who surrounded him adversely to the popular cause. He had been averse to the creation of peers, and it was understood that the peers should allow the bill to pass. This understanding having been departed from, the ministry demanded a creation of peers from the king. He refused, and they resigned. Wellington undertook to form a government, but the house of commons set itself in resolute opposition to the duke, and advised the king to create as many peers as should be necessary to carry the bill through the upper house. On May 15 the whigs announced their return to power, and in June the lords passed the reform bill. This bill gave 159 members to the counties, the constituencies being 82, whereas they had before been but 52, returning 94 members. Fifty-six boroughs that had returned 111 members were extinguished; 30 others lost one member each; and 2 united boroughs that had sent 4 members were reduced to 2. As there was no reduction of the numbers of the lower house made, this left 143 members to be disposed of, 65 of whom were given to counties, 22 to the metropolitan districts and other boroughs with populations of 25,000 and upward, and 21 to boroughs having 12,000 inhabitants and upward. New and great constituencies were created in England and Wales. Numerous improvements in elections were provided. Inhabitancy was made the basis of the borough franchise. Under certain regulations, occupants of houses of the yearly value of £10 became electors. The county franchise was extended to copyholders and leaseholders, and under some circumstances to occupiers to the value of 40s., thus destroying the monopoly of the freeholders, who were not allowed to vote for both county and borough. The Chandos clause—so called from its mover, the marquis of Chandos, eldest son of the duke of Buckingham—provided that tenants at will of the annual value of £50 should have the county franchise. This last provision, and the great extension of county representation, went far to justify the declaration attributed to Earl Grey and Lord Althorp, that the reform act was "the most aristocratic measure that ever passed the house of commons."—Scotland while an independent kingdom had a parliament, dating, it is supposed, from the 13th century, and very similar at first to that of England, but never like the English divided into two houses. It comprised the high ecclesiastics, the great nobles, and the representatives of the freeholders of the counties and of the citizens of the royal burghs, who all sat in one hall. The functions of a house of lords or higher house were performed in some degree by a committee called "the lords of the articles," consisting latterly of 32 members, who did all the work of parliament, the house doing scarcely more than to pass the acts proposed by the committee. The Scottish parliament was abolished by the legislative union of Scotland with England in 1707.—In Ireland a parliament was formed by the English settlers toward the end of the 13th century, but it was not till the reign of James I. that the whole island was represented. The Irish parliament, however, was held to be subordinate to that of England until 1783, when its exclusive authority in matters of legislation and judicature for Ireland was formally admitted. Its brief independence however, and its existence, terminated in 1800 by the union of Ireland with Great Britain.—The French parliaments were supreme courts of law, and were established at successive periods in the principal cities of the kingdom. The most ancient and important of these bodies was the parliament of Paris, the foundation of which is ascribed to Louis VII. about the middle of the 12th century. It was at first a court of justice which accompanied the king wherever he went, till Philip the Fair fixed it at Paris by an ordinance dated March 23, 1302. The other parliaments of France were instituted in the following order: Toulouse, 1302; Grenoble, 1451; Bordeaux, 1462; Dijon, 1477; Aix, 1501; Rouen, 1499 and 1515; Rennes, 1553; Pau, 1620; Metz, 1633; Besançon (at first at Dole), 1676; Douay (at first at Tournay), 1713. The chief officers of these bodies were a first president and 9 presidents à mortier, as they were called from the shape of their caps. The parliaments received appeals from the lower tribunals, and had jurisdiction over causes relating to peers, bishops, seneschals, chapters, communities, and bailiwicks; and they registered the laws, edicts, and ordinances promulgated by the king. The members of these courts were at first appointed by the crown. Francis I. introduced the practice of selling seats in them, and they continued thenceforth to be objects of purchase. The parliament of Paris, which was at first merely judicial in its functions, gradually assumed a considerable degree of political power. It frequently refused to register laws which it did not approve, and held spirited contests with the crown on some occasions. The king, however, had the right to compel it to register his decrees by appearing in person in the court and giving the order to register, a proceeding which, from some of the attendant forms, was called holding a bed of justice. The parliament of Paris played an important part in the troubles of the Fronde at the beginning of the reign of Louis XIV., and also in the latter part of the reign of his successor. It was finally suppressed, with all the other parliaments of France, by a decree of the constituent assembly, Sept. 7, 1790.

PARMA, Duchy of, a province of N. Italy, formerly an independent state with absolute hereditary sovereigns, but annexed to the kingdom of Sardinia in 1860, lying between lat. 44° 19′ and 45° 8′ N. and long. 9° 23′ and 10° 40′ E., bounded N. by Lombardy, from which it is divided by the Po, E. by the duchy of Modena, S. by Carrara and the province of Genoa, and W. by the provinces of Genoa and Alessandria; length from E. to W. about 50 m., breadth from 40 to 50 m.; area, 2,401 sq. m.; pop. in 1857, 499,835. Its S. frontier extends to the Apennines, whence the country slopes N. to the banks of the Po, and thus belongs to the extensive valley of that river. It is intersected by several offsets of the Apennines, presenting bleak and rugged summits, some of which exceed 6,000 feet in height, and whose sides are covered with forests of chestnut, oak, ash, and beech. The Tidone, Trebbia, Nura, Taro, Parma, and other streams, none of which are navigable, flow toward the Po, watering the lower regions, which are fertile. The mountainous districts afford their inhabitants but a scanty supply of food; and many consequently leave their homes in summer to seek employment. The pasture lands are extensive, and excellent cattle and sheep are raised. Cheese is produced in abundance, and is in high repute. Swine, fed upon the acorns in the forests along the banks of the Po, are of fine quality. Silk is produced in comparatively small quantities, but he silk manufacture is the principal branch of ndustry in most of the towns. The mineral wealth of the country consists chiefly of salt prings, which yield annually upward of 12,300 cwt. of salt. Iron is worked to some extent; here is one copper mine, and marble, alabaster, crystals, and lithographic stones are obtained. The facilities of communication are few, the Po being in fact the only thoroughfare. There are few highways; the roads are indifferent, and there are no canals except for irrigation.—The annexation of the duchy to Sardinia has not materially altered its administrative organzation. It is divided into 5 provinces, each under a governor or a prefect, viz.: Parma, Val di Taro, Piacenza, Borgo San Donino, and Lunigiana. A supreme court of justice sits at Parma and a court of appeals at Piacenza; 38 nferior courts are distributed among the other towns and villages. The code promulgated in 1820 was based upon the *Code Napoléon*. The Roman Catholic is the established religion, but other creeds are tolerated. The duchy is divided into 3 bishoprics: Parma, Piacenza, and Borgo San Donino. Primary schools afford gratuitous instruction; collegiate or secondary schools are established in several towns, while Parma and Piacenza have each a superior academy. The military force of the late ducal government amounted to 4,075 men, which might be raised to over 6,000 in time of war. The public revenue amounted to 9,971,685 *lire*, and the expenditures to 9,586,900 (about $475,000). The state property was about $1,500,000, and the public debt $335,000.—Under the Romans, who subdued it in 184 B. C., this territory formed part of Cisalpine Gaul. After the fall of the western empire, it was held successively by the Ostrogoths, the Longobards, and Charlemagne, who granted it to the pope. It became independent during the wars between the holy see and the German empire, and afterward passed under the dominion of several ords, until in 1346 it fell into the hands of the Visconti of Milan. In 1511 the congress of Mantua restored it to Pope Julius II. After being for a while occupied by the French under Francis I., it was in 1545 bestowed by Pope Paul III. upon his natural son Pietro Luigi Farnese, whose successors held the duchies of Parma and Piacenza until 1731, when the male ine became extinct. Elizabeth Farnese, the ambitious queen of Philip V. of Spain, now obtained the duchies for her son Don Carlos; but when he became king of the Two Sicilies they were annexed to Austria. The treaty of Aix la Chapelle in 1748 restored them to Philip, the 2d son of Elizabeth Farnese, who transmitted them to his son Ferdinand. In 1801, n consequence of secret treaties with Spain, hey were incorporated with France and formed he department of the Taro. By the treaties of Paris and Vienna, the duchies of Parma, Piacenza, and Guastalla were bestowed upon Maria Louisa, the wife of Napoleon, who governed them till her death in 1847. Parma and Piacenza then devolved upon Charles Louis, duke of Lucca. This prince was expelled by the insurrection of 1848, and his dominions fell into the hands of the king of Sardinia; but the defeat of Charles Albert soon restored them to the house of Lucca. Charles III., to whom his father had resigned his crown, returned in 1849, but became very unpopular, and was assassinated March 27, 1854, by some unknown hand. His eldest son, Robert, was proclaimed duke, under the regency of his mother, Louise Marie Thérèse de Bourbon, sister of the count de Chambord. The administration of this princess gave some satisfaction; but on the outbreak of the war of 1859 she had to leave the country with her son. The annexation of the duchy to Sardinia, in accordance with a nearly unanimous vote of its citizens, was proclaimed by Victor Emanuel, March 18, 1860; but it has not yet (March, 1861) been recognized by any foreign power.—PARMA, the capital, is situated on both sides of the river Parma, 12 m. S. from the Po, and 72 m. S. W. from Milan; pop. in 1857, 43,664. It is of circular form, surrounded by walls and ditches, about 4 m. in circumference, flanked with bastions, and entered by 5 gates. The streets are tolerably well laid out, and the old Roman Via Æmilia, which forms the principal avenue, extends across the city in an E. and W. direction. There are 4 principal squares, one of which, the Piazza Grande, is remarkably handsome. The private houses are generally plain. The cathedral is a noble building, partly in the Romanesque style and partly Gothic. It was consecrated in 1106, but has since been several times repaired. It is built in the form of a Latin cross with an octagonal cupola in the centre, adorned with a magnificent fresco by Correggio representing the assumption of the Virgin. It also contains numerous paintings and statues of great merit. The baptistery in the vicinity is one of the finest in Italy; it has 8 sides externally and 16 internally, and is built of Verona marble and curiously ornamented with bass-reliefs. There are many other churches, some of which are beautifully adorned with works of art, and several nunneries and monasteries. The ducal or Farnese palace, an immense building, contains a picture gallery, a museum of antiquities, a library of 100,000 volumes, and a large theatre. Parma has an academy attended by about 400 pupils, the colleges of Maria Luigia and St. Orsola, an episcopal seminary, and several inferior schools. There is a hospital capable of accommodating 500 patients, foundling and lying-in hospitals, infant and lunatic asylums, and several other charitable institutions. The manufactures consist of silk, cotton, and woollen goods, carpets, lace, leather, fringe, paper, earthenware, hats, furniture, carriages, hardware, cutlery, glass, glue, musical instruments, and candles, and there are dye and saltpetre works. The trade includes some of the articles just enumerated, together with grain, wine, and provisions.

Parma was a Roman colony, but during the triumvirate it became almost depopulated, and being repeopled by Augustus it assumed the name of Colonia Julia Augusta.

PARMA, ALESSANDRO FARNESE, 3d duke of, an Italian soldier, born in 1546, died Dec. 3, 1592. He was the son of Duke Ottavio by Margaret, the natural daughter of the emperor Charles V., was educated by his mother, and enlisted in the service of Spain in early youth. He fought in the naval battle of Lepanto in 1571, and was sent in 1577 to the Netherlands, where in the following year he took part in the victory of Gembloux, won by Don John of Austria over the Dutch. He succeeded Don John as governor of the Low Countries, and forced the Belgian provinces into submission, successively taking Maestricht, Breda, Tournay Dunkirk, Bruges, Ypres, Ghent, and Antwerp (1578–'83). On his father's death in 1586, he inherited the duchy, but did not even visit his dominions. In 1588 he was put in command of the armada which Philip II. of Spain sent against England; but being shut up with his army in Antwerp by the Dutch flotilla, he was only a spectator of its disastrous failure. In 1590 he invaded France at the head of the Spanish army, and relieved the rebellious city of Paris, which was then besieged by Henry IV. In 1592 he marched into Normandy, and obliged Biron to raise the siege of Rouen, one of the principal cities held by the leaguers; but he received here a wound which afterward proved fatal. Being attacked by Henry IV., who hemmed in his army between the Seine and the English channel, he foiled the efforts of his opponent, and succeeded in landing his troops on the opposite bank of the river, when they returned to the Netherlands. As for himself, he was unable to proceed further than Arras, where he breathed his last. He was a man of consummate military and diplomatic genius. A bronze equestrian statue of him by John of Bologna adorns the principal public square at Piacenza. By his marriage with Mary of Portugal, he left a daughter and two sons, the eldest of whom, Ranuzio, was his successor.

PARMENIDES, a Grecian philosopher, born in Elea in Italy about 513 B. C. He was held in such esteem there that the citizens every year bound their magistrates to obey the laws which he had enacted for them. He was the instructor of Empedocles and Zeno. He went to Athens at the age of 65, and Plato called him "the great," and Aristotle deemed him the chief of the Eleatics. His philosophical opinions (see ELEATIC SCHOOL) are embodied in a hexameter poem "On Nature," some fragments of which are extant, and have been published by Karsten in the *Philosophorum Græcorum Veterum Operum Reliquiæ* (Amsterdam, 1835).

PARMENIO, a Macedonian general, born about 400, killed in 330 B. C. He was the favorite of Philip of Macedon, who used to speak of him as the only general he had found. He defeated the Illyrians in 356, upheld the Macedonian influence in Eubœa in 342, and in 336 was sent with an army into Asia. When Alexander invaded that region he was made second in command, and led the left wing at the battles of the Granicus, Issus, and Arbela. While the king was pursuing Darius in Parthia and Hyrcania, he completed the subjugation of Media; but in the mean time his son Philotas was accused in Drangiana of conspiring against Alexander's life, and when put to the torture made a confession which implicated his father. Alexander caused the veteran general to be assassinated, though there is little probability that he was guilty.

PARMIGIANO, or PARMIGIANINO, an Italian painter, whose real name was Francesco Mazzuoli, born in Parma, Jan. 11, 1503, died in Casal Maggiore, Aug. 24, 1540. In his 14th year he produced a picture of the "Baptism of Christ," exhibiting a remarkable grace of style. Four years later, while assisting Correggio in his labors in the church of San Giovanni in Parma, he cultivated the manner of that master; but he was in no respect his pupil, having too much ambition to become the imitator of any one. In his 20th year he repaired to Rome, where the poets of the day, in the warmth of their admiration, declared that the mantle of Raphael had fallen upon him. Clement VII., Cardinal Ippolito de' Medici, and others, employed him extensively; and for a noble lady, Signora Maria Buffalini, he painted his celebrated "Vision of St. Jerome," now in the British national gallery. It is related that during the sack of Rome by the constable de Bourbon, the painter was so absorbed in the execution of this picture as to have become indifferent to the scenes of rapine and violence enacting around him. A party of soldiers who surprised him in his studio, awed by the beauty of the mother and child, retired without doing him any injury. He was however soon after obliged to take refuge in Bologna, where his best works were produced. Among these were the *Madonna della rosa*, in the Dresden gallery; the *Madonna dell' collo lungo*, in the Pitti palace; and the famous altarpiece, now in the gallery at Bologna, called the *Santa Margherita*, which Guido preferred to the St. Cecilia of Raphael. In 1531 Parmigiano returned rich and celebrated to his native city, and was commissioned to execute a series of frescoes in the church of Sta. Maria della Steccata, which after a delay of several years he commenced, but never finished. Among the figures completed is a celebrated one of Moses breaking the tables of the law. His failure to execute these frescoes has been attributed to an indulgence in gambling and dissipation, and to a taste for alchemy. He was finally thrown into prison for neglecting to fulfil his contract; and having by fresh promises obtained his freedom, he escaped into the neighboring territory of Cremona, where he died a few months later.

PARNASSUS, in ancient geography, a mountain range of Greece which commences near Œta and Corax, and, traversing Doris and Phocis in a S. E. direction, terminates at the Corinthian gulf. In a more restricted sense the name is applied only to the highest part of the range, which lies a few miles N. of Delphi in Phocis, and culminates in Mounts Tithorea (now Velitza) and Lycorea (now Liakura). Its sides are well wooded and abound in caverns and picturesque ravines. On the summit snow lies the greater part of the year. In antiquity it was celebrated for its sacred character. Delphi at its foot was the seat of a famous oracle of Apollo. The god himself and the Muses made the mountain their favorite haunt, and the latter held here their assemblies. The Castalian spring in which the Pythoness used to bathe sprang from a cleft in the rocks between two of the summits. The Corycian cave, sacred to Pan and the Muses, was on Mt. Lycorea. Parnassus was also sacred to Bacchus, and the theatre of the Bacchanalian revels of the Thyades.

PARNELL, Sir Henry Brooke. See Congleton.

PARNELL, Thomas, D.D., an Irish clergyman and poet, born in Dublin in 1679, died in Chester in Oct. 1718. He was the son of a commonwealth's man who had settled in Ireland at the time of the restoration, was admitted to the college of Dublin at the age of 13, was graduated M.A. in 1700, took holy orders in the same year, and was created archdeacon of Clogher in 1705. He made frequent visits to England, staying in Ireland in fact no longer than was necessary to collect his revenues, or wear off in seclusion the fits of spleen to which he was frequently subject. With Pope, Swift, Arbuthnot, and Gay he was united in the closest friendship, and was a member of the famous Scriblerus club. He assisted Pope in his translation of Homer, and wrote the life of Homer prefixed to the Iliad, of which Pope says: "It cost me more pains in the correcting than the writing it would have done." His prose style in fact was stiff and incorrect, and his only considerable composition of this sort except the life of Homer was a satire on Dennis and Theobald, under the title of "A Life of Zoilus." At the instance of Swift, Archbishop King gave him a prebend in 1713, and in May, 1716, presented him to the vicarage of Finglass, in the diocese of Dublin. He was a man of delightful social qualities, but in the latter part of his life the victim of intemperance, to which he is said to have been led through grief at the death of his wife. A selection from his poems was published by Pope in 1722, and a supplementary volume, which added nothing to Parnell's reputation, appeared in 1758. The "Allegory on Man," "The Hermit," "A Fairy Tale, in the ancient English Style," "Hesiod, or the Rise of Women," and a translation of Homer's "Battle of the Frogs and Mice," may be mentioned as among his happiest productions. "His praise," says Dr. Johnson, "must be derived from the easy sweetness of his diction; in his verses there is more happiness than pains; he is sprightly without effort, and always delights though he never ravishes; every thing is proper, yet every thing seems casual." His life was written by Goldsmith.

PARNY, Évariste Désiré Desforges, chevalier de, a French poet, born in St. Paul, island of Bourbon, Feb. 6, 1753, died near Paris, Dec. 5, 1814. He went to France to study with the ultimate purpose of entering the church, but soon changed his mind and became a soldier. In 1773, returning to his native island, he fell in love with a young creole lady, Esther de Baïf, whom he afterward celebrated under the name of Éléonore. His father opposed the marriage, and the young officer repaired again to France, where he devoted himself to literature. In 1777 he published his *Voyage en Bourgogne*, a lively account of travel in prose and verse, and a semi-satirical poem, *Épître aux insurgents de Boston*. This was followed in 1778 by his first collection of erotic poems, which were republished with the addition of a 4th book, and procured him from Voltaire the surname of the "French Tibullus." In 1785 he went out to India as aide-de-camp to M. de Souillac, who had been appointed governor-general of the French possessions. Returning with despatches in the course of a few months, he retired to the village of Feuillancourt, near Paris, where he occupied his leisure hours with writing poems, among which were *Les fleurs*, *La journée champêtre*, and *Les douze tableaux*. In 1795 he was appointed to a subordinate office in the department of public instruction, and for one year held the post of administrator of the *théâtre des arts*, now the grand opera. His later poems, remarkable for their union of wit and obscenity, are not worth specifying, though they were in accordance with the depraved taste of the times. He was admitted to the French academy in 1803. Français de Nantes gave him an office in the administration of the *droits réunis*, and Napoleon bestowed upon him a pension of 3,000 francs. His complete works were published in Paris (5 vols. 18mo., 1808) and Brussels (2 vols. 8vo., 1826).

PARODY (Gr. *παρῳδια*, a song sung beside, that is, with certain changes), a composition in verse or prose, designed to turn into ridicule a serious composition. It preserves the form and style, but either substitutes for the original an entirely different composition, or introduces changes applying it to some inappropriate subject, or alters some of the words and phrases in such a way as to convey a ludicrous sense. The Greeks are supposed to have been the inventors of parody, and the *Batrachomyomachia*, or "Battle of the Frogs and Mice," ascribed to Homer, has been regarded as the earliest example of this sort of composition. There is little doubt, however, that the *Batra-*

chomyomachia is of more recent date, and the origin of parody may with more probability be assigned to Archilochus.

PAROL (Norman Fr., a spoken word), as an adjective, in law, by word of mouth, not written. This word has an important meaning in the law of evidence, and also in the law of contracts. The general rule in evidence is, that a written instrument cannot be contradicted or varied by parol evidence, but may be explained. (See Evidence.) In contracts the common law of England made a wide and strongly marked distinction between specialties and simple contracts. Specialties are either sealed instruments, all of which in law are deeds (see Seal), or judgments of a court of record (see Judgment), recognizances and statutes staple. Simple contracts are all those which are not contracts by specialty. By specialty contracts is commonly meant contracts under seal; by simple contracts are meant parol contracts, or contracts by word only, whether that be written or spoken. In a few instances a distinction has been taken between written and spoken contracts, confining the term parol to the latter; but it is well established, and now universally conceded, that an oral contract is the same thing in law as a written but unsealed contract, differing only as the above stated rule of evidence applies to the proof of it, or as there may be statutory provisions upon any special matter, requiring that contracts in relation to it should be in writing. (See Frauds, Statute of.) It will be seen in the article Seal that a very different system of law is applied to instruments which have seals affixed to them.

PAROLE, in military law, the promise of a prisoner not to escape, if he is allowed certain liberties. This is seldom or never sanctioned by an oath, but is a *parole d'honneur;* and it is always deemed an indelible disgrace if this word of honor is violated.—Parole, in military matters, also means the "word" or sign given out by the commander of a post, every day, which word being communicated to the guard, and to every one who has permission to go in or out, or, in military phrase, to pass the guard, serves to distinguish him. Wherefore every guard of such a place is ordered to prevent, by arrest, or if need be by death, the passing of his post by one who cannot or does not give the word for the day. Sometimes two words are given, one of which the guard utters, and the other is to be pronounced by one who would pass him. These are then called the sign and countersign. As a matter of convenience, similar arrangements are often made at the door of a room, or the entrance of any place, where persons are meeting for private purposes and wish to protect themselves from interlopers.

PAROPAMISAN MOUNTAINS, a range of mountains traversing Afghanistan and E. Persia, called sometimes the W. Hindoo Koosh or the Ghoor mountains. Beside their eastern connection with the Hindoo Koosh, they join on the west the Elbrooz mountains. From north to south they are 200 m. in length, and from east to west 350, separating the desert of Yezd from that of Toorkistan. On the east the mountains are precipitous and the valleys narrow, but toward the west the elevations are lower and the valleys wider. In no place do they reach the limit of perpetual snow. These mountains are inhabited by various pastoral tribes. By the ancients they were called Paropamisus; but not being known until the time of Alexander, and then only imperfectly, their ideas in regard to them were exceedingly confused.

PAROQUET, or Parrakeet, the common name of many old world parrots of the sub-family *pezoporinæ*. They all have a moderate bill, the tail long, broad, and more or less graduated, with the ends of the feathers narrowed, and the tarsi generally high and slender, and the claws nearly straight, enabling them to walk upon the ground more easily than the other sub-families. In the Australian genus *nymphicus* (Wagl.) the bill is strongly dentated, the wings and tail very long, the 2 middle feathers of the latter prolonged and pointed, and the tarsi stout. The crested paroquet (*N. Novæ Hollandiæ*, Wagl.) is of an elegant form, though of a grayish color, with the sides and top of the head bright yellow, a reddish orange spot below the eye, and a handsome yellow crest like that of the lapwing; they are migratory, at times collecting in large flocks, and much upon the ground picking up seeds and grains; they breed in holes in gum trees in the neighborhood of water, the female depositing 5 or 6 eggs.—The broad-tailed paroquets (*platycercus*, Vig.), of Australia, New Zealand, and New Guinea, are very elegant, graceful, and lively birds, with diminished powers of flight and climbing and more activity upon the ground; the bill is short and curved, with obtuse tip and sides very slightly if at all dentated; the wings moderate, and the tail broad and long. They are usually seen in flocks upon the ground, in search of seeds, fruits, and grain, and sometimes do much damage both to the newly sown and ripening maize and wheat. The blue-cheeked paroquet (*P. Pennantii*, Lath.) is beautifully colored with crimson, black, and blue, the first prevailing on the body and the last on the wings; it is very tame and familiar, and often destructive; great numbers are captured for the delicacy of the flesh; it is often kept in cages for its beauty, and is not unfrequently carried to Europe, but its powers of imitation are very small; the total length is about 16 inches, of which the tail is one half. The nonpareil paroquet (*P. eximius*, Shaw) is one of the handsomest of the family, having the head, neck, and breast scarlet, wings mazarine blue, throat and abdomen yellowish white, back undulated with blackish and yellowish green, and tail blue. More than 20 other species of this genus are described.—The ground paroquet (*pezoporus*, Illig.) is the most terrestrial of the family, as evinced by the greater elongation of the tarsi and toes, the straighter claws, and the less depressed and more pointed tail. The *P. formosus* (Illig.) inhabits the bushy districts of Australia; it is about a foot long, of a lively green color, varied and barred with black and yellow; it lives entirely upon the ground, where it runs with great speed; it is very shy, and never takes to flight except for short distances; its flesh is highly esteemed as food; its eggs are laid on the ground.—Among the handsomest of the sub-family are the ringed paroquets (*palæornis*, Vig.), which have a short rounded bill, sharp-pointed, and the tail long and graduated, the 2 middle feathers longest; they are remarkable for the elegance of their form, their docility, and powers of imitation; most of the species are found in India and its archipelago, and may be known by the collar-like ring around the neck. The Alexandrine paroquet (*P. Alexandri*, Vig.) was so named from the supposition that it was the one brought to Europe by Alexander the Great; it is about 15 inches long, green above, paler or yellower below; across each shoulder is a purplish red patch; a black band from the lower mandible descends and passes backward so as almost to encircle the neck, growing narrowest behind, where there is a red collar becoming narrowest in front; the bill reddish. This bird was well known to the Greeks and Romans, who kept it in highly ornamented cages; it is mentioned by Aristotle and Pliny, and Ovid has described it in one of his most beautiful elegies (on the death of Corinna's parrot). A nearly allied species is the rose-ringed paroquet (*P. torquatus*, Vig.), 15 inches long, of which the tail is about 10, of a grass-green color with a rose-colored ring around the neck. There are about a dozen other species in India, associating in flocks, and often doing mischief to the crops; they are all docile, imitative, and handsome birds.—The grass paroquets (*melopsittacus*, Gould) of Australia are remarkable not only for the beauty of their plumage but for their pleasing song; the bill is very short and high, the tail graduated and cuneiform, the tarsi long, and the toes slender. The warbling paroquet (*M. undulatus*, Gould) is about 7 inches long, with the upper parts oil-green with darker undulations, the lower parts yellowish green, as also the head and nape, the latter with fine, dark, undulating lines; an azure blue spot on each cheek; the tail green, the middle feathers tipped with azure, and a broad yellow band across it; the bill and legs gray. They pass most of their time on the ground, migrating with rapid flight from place to place in large flocks in search of grass and other seeds; during the heat of the day they remain concealed among the leaves of lofty trees; they are often kept in cages, where their beauty, song, and gentle and loving habits make them pleasing pets. In the allied genus *nanodes* (Vig. and Horsf.) or *euphema* (Wagl.), also Australian, are about half a dozen elegant little grass paroquets, with habits like those of the preceding genus. One of the handsomest is the blue-banded paroquet (*N. venustus*, Vig. and Horsf.), about 9½ inches long, of which the tail is 4; the prevailing colors above are various tints of green, tinged in some parts with yellow and gray, the frontal band azure blue, the under parts below the breast rich yellow, the quills black margined with blue, and the tail blue and yellow. In the *N. pulchellus* (Vig. and Horsf.), the upper parts are green, the wings blue, the under parts and the outer tail feathers yellow.—The genus *trichoglossus* (Vig. and Horsf.), which seems to connect this sub-family with the lories, hence called "lorikeets," takes the place in Australia of the Indian lories, and contains some of the most beautiful of the parrot family; the prevailing color of the plumage is green, varied however with scarlet, blue, and yellow; the tail is elongated and graduated, and the wings narrow and pointed; the bill is slender and weak, but arched and hooked; the tarsi short and robust, and the strong and broad toes armed with sharp claws; the generic name is derived from the structure of the tongue, which has near the tip a pencil or brush of hair-like bristles, especially adapted for procuring the nectar of flowers, which forms their principal food; they also suck the juices of soft fruits, but do not attempt the hard seeds of which most parrots are fond. The blue-bellied paroquet (*T. multicolor*, Vig. and Horsf.) is about 13 inches long, of which the tail is 6; the head and throat are bluish purple, with a nuchal collar of bright green; breast vermilion red, passing on the sides into rich yellow; abdomen deep purple in the middle, vermilion tipped with green on the sides; under tail coverts red, yellow, and green, and under wing coverts red; upper parts grass-green, varied with vermilion and yellow on the back of the neck; tail green in the middle, with more or less yellow on the sides. They live in large flocks, moving from place to place in search of the newly expanded flowers of the gum trees (*eucalypti*); they are sometimes caged, but do not live long in confinement from the difficulty of supplying them with proper food; they have been seen frequently to put out their tongues to painted and artificial flowers as if in search of their favorite pollen. Some of the species are small, like the orange-winged paroquet (*T. pyrrhopterus*, Lath.) of the Sandwich islands; this is 7½ inches long, with pale pinkish bill, general color green, with under wing coverts rich orange, and the sides of the neck and throat grayish white. They are active, familiar, docile, and very affectionate toward each other whether free or confined; their gait and quick flight are much as in perching birds; the voice is not disagreeable, resembling the chirp of a sparrow.—Other less known genera are *coracopsis* (Wagl.), from Madagascar and S. Africa; and *prioniturus* (Wagl.), from the Philippine islands, of which the racket-tailed paroquet (*P. platurus*, Wagl.), the only species described by Gray, has the 2 middle tail feathers prolonged beyond the others, with the shafts bare of webs except at the tips.

PAROS, or PARO, an island in the Ægæan sea, one of the Cyclades, separated from Naxos or Naxia on the E. by a strait 5 m. wide; length N. E. and S. W. 14 m., breadth 11 m.; pop. about 6,000. Its highest point of land, Mount St. Elias, stands in lat. 37° 2′ 46″ N., long. 25° 11′ 30″ E. There are several harbors, Parikia on the W., St. Maria, Marmora, and Trio on the E., and Naussa on the N., the best in the archipelago. There are also several villages, of which the principal is Paroikia, on the site of the ancient Paros. The country, though hilly, is fertile, and produces principally olives and cotton, and also corn, wine, fruit, and legumes. It was in former times chiefly renowned for its marble, which was remarkably white and durable, and was considered second only to that of Pentelicus. The principal quarries were in Mount Marpessa, but since the fall of the eastern empire these have been neglected.—Paros, according to tradition, was first inhabited by Cretans and Arcadians, and obtained its name from Parus, a son of the Arcadian Parrhasius. It was however early colonized by the Ionians, and by means of its maritime trade became so prosperous that it in turn colonized Thasus, Parium on the Propontis, and Pharus on the Illyrian coast. Having submitted to the Persians after the battle of Marathon (490 B. C.), it was enabled to bid defiance to Miltiades, and after the sea fight of Salamis (480) secured its safety by paying a fine to Themistocles. Subsequently it fell into the power of Athens, along with the other islands of the Ægæan, and paid to that city a tribute of 19,440 drachmas yearly. In later times it became subject to Venice, constituting for a time a portion of the dukedom of Naxos; but subsequently it came into the possession of the Venetian family of Veniero, and in the 16th century was taken by Barbarossa. Toward the close of the 18th it became a naval station for the Russian fleet, and now forms a part of the kingdom of Greece.

PAROTID GLAND (Gr. παρα, near, and ους, ωτος, ear), the largest of the salivary glands, situated in man on the side of the face, in the deep hollow between the posterior border of the lower jaw, the ear, and the mastoid process of the temporal bone, and extending from the zygomatic arch to the angle of the jaw. It is irregularly pyramidal in shape, the base turned outward, and its external surface is just underneath the skin. The structure is firm, of a grayish white color, made up of granular follicles united into lobules and irregular lobes by dense areolar tissue; the ultimate follicles are very small, the average diameter being about [illegible] of an inch, and are closely surrounded by a plexus of capillaries; their development begins from a simple canal opening from the mouth, sending off bud-like processes during growth. Its large single excretory tube, called Steno's duct, is about a line in diameter, directed horizontally forward, piercing the buccinator muscle, and opening into the mouth on a level with the 2d upper molar tooth. Its vessels are derived from branches of the external carotid artery, and its nerves from the facial, trifacial, and the cervical plexus. Its secretion is as thin and limpid as water, containing from [illegible] to [illegible] of 1 per cent. of solid matter; it resembles that from the sublingual gland, and from these two flows most of the saliva during mastication, favoring the mechanical reduction of the food by saturating it with watery fluid. It is subject to tumors, which, from the depth of the posterior portion and its relation to large vessels and nerves, it is difficult and often dangerous to remove. The common disease of children known as mumps is situated in this and in the submaxillary salivary gland. It is large in such mammals as masticate their food, as the horse, ruminants, pachyderms, and rodents; it is small in the carnivora, rudimentary in seals, and absent in carnivorous cetaceans.

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